EFFECTIVENESS OF JACOBSON'S RELAXATION TECHNIQUE ON DYSMENORRHEA AMONG THE ADOLESCENT GIRLS

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CERTIFICATE

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ABSTRACT

Background of the study: Dysmenorrhea is painful menstruation of sufficient magnitude so as to incapacitate day to day activities which is manifested by cramping pain on the ovulatory cycles along with nausea, vomiting, fatigue and fainting. It affects 17% - 80% in global level. **Objective:** The aim of the study was to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhea among school going adolescent girls in selected schools at Madurai. **Methodology:** Assessment of pain was done by Visual Analogue Scale. Jacobson's relaxation technique was given for 30 minutes twice a day on the day of menstruation. **Design:** Quasi- experimental non equivalent pre-test and post-test control group design was used. **Settings:** The students studying in IX^{th} standard of two sections were selected 30 in experimental group and 30 in control group from CSI Girls Higher Secondary School at Madurai. **Statistical Analysis:** Analysis was done by using Percentage, Chi square test. **Result:** The mean post test dysmenorrhea score 4.33 of the experimental group was lower than the mean post test dysmenorrhea score 7.5 of the control group with a 't' value of 9.52 . There was significant reduction in post test level of dysmenorrhea score, in the experimental group compared to the control group, (MD- 3.17 $P<0.001$). There was there was no association between post test dysmenorrhea score and selected demographic variables. **Conclusion:** Most of the adolescent girls suffer from dysmenorrhea. Jacobson's relaxation technique was effective in reducing the level of dysmenorrhea among adolescent girls.

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CHAPTER I

INTRODUCTION

BACKGROUND OF THE STUDY

"Learning gives creativity,

Creativity leads to thinking,

Thinking provides knowledge,

Knowledge makes you great."

- Dr. A.P.J. Abdul Kalam.

Menstruation is the cyclic uterine bleeding experienced by most of the women of reproductive age. Normal menstruation represents the cyclic shedding of the uterine secretory endometrium because of a decline in estradiol and progesterone production caused by a regressing corpus luteum. (D.C Dutta, 2007)

Menstrual cycle is a series of events, occurring regularly in females every 28 to 30 days throughout childbearing period of about 36 years. The cycle consists of a series of changes taking place concurrently in the ovaries and uterine walls, stimulated by changes in blood concentrations of hormones. The average length of the menstrual cycle is about 28 days. By convention the days of the cycle are numbered from the beginning of the menstrual phase of the menstrual cycle, which usually lasts about 4 days. This is followed by the proliferative phase about 10 days, then by the secretory phase about 14 days. (Rose & Willson, 2006).

Dysmenorrhea literally means painful menstruation. But a more realistic and practical definition includes cases of painful menstruation of sufficient magnitude so as to incapacitate day to day activities. (D.C Dutta, 2007)

Adolescents as those people between 10 and 19 years of age. The great majorities of adolescents are therefore, included in the age based definition of "child",

is adopted by the convention on the rights of the child as a person under the age of 18 years. (World Health Organization, 2014).

Adolescence is the phase usually between 10 – 20 years, in which children undergo rapid changes in body images, physiological, psychological and social functioning. (Indian Academic of Peadiatrics [IAP], 2016).

Adolescence is the period during which the individual makes the transition from childhood to adulthood, usually 13 to 20 years. The term ***adolescent*** usually refers to psychological maturation of the individual, whereas ***puberty*** refers to the point at which reproduction becomes possible. (Potter& Perry, 2012).

Adolescence represents the transitional period linking childhood to adulthood and involves physical, biological and psychological changes in a girls. The adolescent and young adult years are a time of both change and stability. Adolescence begins with puberty & extend from 12 to 20 years of age. (Taylor, Lillis, 2012).

Puberty as the sequence of events by which individual is transformed into a young adult by a series of biological changes. During this period that secondary sexual characterics developed. (UNICEF, 2016).

Period of life from puberty to adulthood roughly ages between 12-20 years is characterized by marked physiological changes, development of secondary sexual characteristics efforts toward the construction of identity and a progression from concrete to abstract thought. Adolescence is sometimes viewed as a transitional state during which youths begin to separate themselves from their parents but still lack a clearly defined role in society. It is generally regarded as an emotionally intense and often stressful period (Merriam Webster, Dictionary- 2012).

The exact period when a normal puberty begins and ends is not defined but varies between the age of 13 and 16 years. Pubertal changes are physical,

endocrinological, genital, psychological and emotional changes that occur during puberty are modulated by the interaction of various hormones secreted through the hypothalamic pituitary ovarian axis (H-P-O) as well as thyroid and adrenal glands.(Bourne& Shaw's 2011).

Puberty is a broader term that denotes the entire transitional stage between childhood and sexual maturity. Increasing amounts and variations in gonadotropin and estrogen secretion develop into a cyclic pattern at least a year before menarche. (Lowdermilk, 2004).

Menstruation is the periodic uterine bleeding that begins approximately 14 days after ovulation. It is controlled by a feedback system of 3 cycles such as endometrial, hypothalamic – pituitary and ovarian axis. The average length of menstrual cycle is 28 days but variations are normal. The average duration of menstrual flow is 5 days (range 3 to 6 days) and the average blood loss is 50ml (range 20 to 80ml) (Lowdermilk, 2004).

Normal menstruation requires integration of the hypothalamic pituitary ovarian axis with a functional uterus a patent lower genital outflow tract and a normal genetic karyotype of 46XX. (Bourne& Shaw's 2011).

Menstruation should be defined according to the following parameters such as regularity of menstruation, frequency of menstruation, flow of menstruation and duration of menstruation. (Reproductive Medicine, 2011).

Four menstrual disorders which are commonly encountered by health care practitioners as they care for women have amenorrhea, irregular bleeding, dysmenorrhea and premenstrual syndrome. (American College of Obstetricians & Gynecologists [ACOG], 2007)

Irregularities with the menstrual period are among the most common concerns of women and often cause them to seek help from the health care system. Common menstrual disorder includes Amenorrhea, Dysmenorrhea, Menorrhagia, Oligomenorrhea. Polymenorrhea. (Bourne& Shaw's, 2011).

Dysmenorrhea is one of the most common gynecological disorders affecting more than half of menstruating women. Dysmenorrhea is classified into two categories; primary dysmenorrhea which is manifested by a cramping pain in the lower abdomen which occurs just before or during menstruation without evident of pelvic pathological lesions more over the pelvic examination and ovulatory functions were normal. Secondary dysmenorrhea which refers to painful menstruation along with an identifiable gynecological pathology such as endometriosis and tumor. (Awed, EL. Saidy and Amro, 2013).

Dysmenorrhea is defined as pain that occurs during or before menstruation it is one of the most common gynecological problems in women of all ages. The pain is usually most intense in supra pubic region or in the lower abdomen. (ACOG, 2007)

Dysmenorrhea is a major problem of adolescent girls. Which is characterized by painful cramps in the lower abdomen sometimes accompanied by vomiting, diarrhea, dizziness and fainting which affects 20 to 90 percent of adolescent girls and severely impacts another 14 to 42 percent. Dysmenorrhea is excessive cramping that causes a young girls to miss the school or work. (Lowdermilk, 2004).

Dysmenorrhea is painful menstruation. It may include pain in lower abdomen, back, legs, abdominal cramps, headache and fatigue. Most young girls have painful periods at some time in their life. In some young girls the pain is severe enough to interfere with normal activities. (Michelle King Robson, 2017).

Primary dysmenorrhea is common in adolescents is characterized by spasmodic pain beginning with the onset of menstruation and lasting 12 – 24hours. It is caused by prostaglandin E_2. Which cause vasoconstriction and myometrial contractions. At the times the pain is severe enough that a girls has to miss school, college and her work. (Bourne Shaw's, (2011).

Secondary dysmenorrhea is painful menstruation associated with an underlying pelvic abnormality such as endometriosis, uterine fibroid and pelvic inflammatory disease. Treatment of secondary dysmenorrhea will vary with the underlying cause. Surgery can be done to remove fibroids or to widen the cervical canal if it is too narrow. (Medindia Health, 2016)

In addition to the above, other non-medicinal treatments for the pain of dysmenorrhea include:

- Lying on the back, supporting your knees with a pillow.
- Holding a heating pad or hot water bottle on your abdomen or lower back.
- Taking a warm bath.
- Gently massaging abdomen.
- Doing mild exercise like stretching, waking, bike riding and exercise may improve blood flow and reduce pelvic pain.
- Getting plenty of fluids and avoiding stressful situations when the periods are nearby approaches.

Also with to consider alternative therapies such as hypnosis, herbal medications or acupuncture (Medi Resource, 2010).

Many adolescent girls have dysmenorrhea in the first 3 years after menarche. Young adult women aged 17 and 24 years are most likely to report painful menses.

30% to 40% of women report some level of discomfort associated with menses and 7% to 15% report severe dysmenorrhea. (Lowdermilk, 2004).

Dysmenorrhea was reported in 76% of the participants. Poor concentration at school (59.9%) and refusal of participation in social events (58.6%) have been most affected. Multivariate analysis shows that being in upper secondary level was the strongest predictor for poor concentration absenteeism and poor school grade due to dysmenorrhea (Wong, 2011). More than one alternative therapies for alleviating menstrual discomfort and dysmenorrhea can be offered. Women can try options and decide which one works best for them. Heat (heating pad or hot bath) minimizes cramping by increasing vasodilation and muscle relaxation and minimizing uterine ischemia. Massaging the lower back can reduce pain by relaxing par vertebral muscles and increasing pelvic blood supply. Soft rhythmic rubbing of the abdomen (effleurage) may be useful because it provides distraction and an alternative focal point. Guided imagery. Progressive relaxation (increase the endorphin secretion and reduce the prostaglandin), yoga (gentle massage over internal organs due to increase the circulation to pelvic organs and prevent congestion) and meditation (alleviate stress and stabilize the vital signs and enzymes, hormones regularization) also have been used successfully to decrease menstrual discomfort (Lowdermilk, 2004).

Initial treatment with drug therapy is focused on relieving pain. Non steroidal anti-inflammatory drugs (NSAIDS) helps to relieve pain (NSAIDS include over the counters medications such as aspirin, ibuprofen and naproxen). They are really good to give relief from the pain but they can cause stomach upset and hence taking them with food may help long term use but can increase the risk of stomach bleeding. So alternative and complementary therapies are the best choices to treat dysmenorrhea without any side effects (Maryland Medical Centre, 2011).

In recent years most of the population are preferring complementary and alternative therapies of medicine. Acupressure is a traditional healing practice that is based on the same principle as acupuncture. Instead of applying needles to acupuncture point pressure is applied. A point that if often recommended by acupuncturist for menstrual cramps is called SP6. Although there are only preliminary studies on acupressure by alternative practitioners. (Wong, 2012).

One among the complementary and alternative medicine is the use of herbs. Most of the natural herbs are having lot of medicinal effects, e.g corudalis, cramps bark, agai, back cohosh, blue cohosh, lavender, clarysage and rose oil. (Lowdermilk, 2004).

Aromatherapy with lavender, clary sage and rose could be effective in dysmenorrhea. So aromatherapy could be applied to adolescent suffering with dysmenorrheal. (Nicole Cutler.L.Ac., 2014).

Abdominal massage is a direct technique to increase uterine circulation, thus reducing localized muscular tension. Abdominal massage is done for 5 minutes per day during 6 days from the fifth day before menstruation to the first day of menstruation. Many women experience menstrual cramps relief with the use of and on cramping muscles. Certain essential oils are known to have relaxing effects on the mind and on cramping muscles. Some of the essential oils reputed for this specific use include lavender, clary sage, rose oil, ginger and manjoram. Blended with carrier oil, a therapist chosen essential oils can be gently applied to the abdomen for immediate uterine cramp relief (Cutler, 2007).

Gynecologic symptoms which are often chronic in nature may be self-treated with herbs and dietary supplements. Nurses should be aware of the therapies that have

evidence-based support which carry a low side effect burden and the least potential to interact with other medicine.

Education is an important component of the management of menstrual cramps. Women have found a number of complementary and alternative therapies to be useful in managing the symptoms. Nurses and other health professionals have the responsibility to provide women's holistic health care. Menstrual cramps and its management is a very important aspect of holistic health care, which needs to be promoted. The specialized nurse in particular field can play a crucial role as educator and counselor. So nurses must play a key role in informing women about menstrual cramps and providing consultations on how to improve their quality of life, as well as encouraging the recognition of this common condition and helping women cope with these symptoms through using safe herbal, alternative & complementary therapy method instead of medical chemical drugs.

NEED FOR THE STUDY

Dysmenorrhea is painful menstruation. The pain is caused by the release of prostaglandin in response to tissue destruction during the ischemic phase of the menstrual cycle. Prostaglandin release cause smooth muscle contraction and pain in the uterus.(Adele Pillitteri, 2010)

Dysmenorrhea refers to the occurrence of painful menstrual cramps of uterine origin. It is a common gynecological condition in women regardless of age and nationality. In Global level the prevalence of dysmenorrhea was reported in the range between 17% and 80% (Latthe, 2015).

In state level the overall prevalence of dysmenorrhea was prevalent in 72.6%, menorrhagia and irregular menstrual cycles were present among 45.7% and 31.7% of the participants. (Ravi, Edward, Shah, 2016).

The study on incidence of dysmenorrhea in India revealed that it occurs in 50% menstruating women and about 10% are incapacitated for 1-3 days each month. In the first year after menarche 38% of girls develop dysmenorrhea. In the second and third year after menarche 20% experience pain related to menstruation. (Med India, 2103).

Agarwal and Agarwal (2010), conducted a study on the prevalence of dysmenorrhea was found to be 79.67% among adolescent girls in Gwalior suffer from dysmenorrhea. Most of them (37.96%) suffered regularly from dysmenorrhea. The three most common symptoms present on both days, that is, day before and first day of menstruation were lethargy and tiredness (first), depression (second) and inability to concentrate on work (third), whereas the ranking of these symptoms on the day after the stoppage of menstruation showed depression as the first common symptoms.

MoolRaj Kural, Naziya Nagori Noor, (2015), conducted cross sectional study prevalence of primary dysmenorrhea in young girls. Data was collected among 310 girls. Dysmenorrhea was reported in 84.2% (261) girls and 15.8% (49) reported no dysmenorrhea. Using VAS, 34.2% of girls experienced severe pain, 36.6% moderate and 29.2% had mild pain. Bleeding duration was found to be significantly associated with dysmenorrhea ($\chi^2 = 10.5$; $P < 0.05$), girls with bleeding duration more than 5 days had 1.9 times more chance of getting dysmenorrhea

Sharma, Malhotra, Taneja, Saha, (2009), conducted a study in New Delhi. In this more than third ie, 35.9% of the study subjects were in the age group of 13- 15 years followed by 17- 19 years, 15-17 years respectively. Mean age of the study participants was calculated to be 16.2 years. Dysmenorrhea ie, 67.2% was the commonest problem and 63.1% had one or the other symptom of pre menstrual syndrome (PMS) and other related problems were present in 55.1% of the study

subjects. Daily routine of 60% girls was affected due to prolonged bed rest, missed social activities/ commitments disturbed sleep and decreased appetite 17.24% had to miss a class and 25% had to abstain from work.

Rakhshaee (2012) department of midwife Islamic Azad university Iran conducted across sectional study of dysmenorrhea and its prevalence, impact and associated symptoms on 600 female university students. The results showed that the prevalence of dysmenorrhea was 73.2% and there was significant difference between pain intensity and associated symptoms ($P<0.05$). Among participants 69.7% expressed that dysmenorrhea had an adverse effects on their academic performance. Also, more than 60% of participants reported that their social activities and relationship with family were affected by dysmenorrhea. Statistically significant correlation was observed between pain duration of severity and social activities (P 0/0.1) and concluded that dysmenorrhea is highly prevalent among female students and it is related to the absenteeism and limitations in social and academic performance. It is necessary that educational programs about its effective methods can be helping alleviate the discomfort during menses.

Anandha Lakshmi, Priya, Sarswathi, et al. (2011) conducted a cross sectional study on 300 female medical students in kanchipuram. The prevalcence of dysmenorrhea was 51% and that of the pre menstrual syndrome was 67%. Only 9.7% of the students consulted a physician or pharmacist. 22.1% of students with dysmenorrhea reported limitation of daily activities. Increase in BMI is significantly associated with pre menstrual syndrome ($p = 0.035$) but its association with dysmenorrhea was not significant ($p = 0.259$). There exists a string association between lack of physical exercise and pre menstrual syndrome (p value 0.005) but not with dysmenorrhea ($p = 0.3$).diet pattern of consuming fast foods frequently is

significantly associated with pre menstrual syndrome (p = 0.05) and not with dysmenorrhea. Severity of dysmenorrhea is significantly associated with college absenteeism (p = 0.005).

Primary dysmenorrhea is thought to be caused by excessive levels of prostaglandins hormones that make uterus contract during menstruation and childbirth. Its pain probably results from contractions of uterus that occur when the blood supply to its lining is reduced. During endometrial sloughing, endometrial cells release prostaglandins as menstruation begins. Prostaglandins stimulate myometrial contractions and ischemia. Women with more severe dysmenorrhea have higher levels of prostaglandins in menstrual fluid and these levels are highest during the first two days of menstruation. (PubMed, 2015).

Hong JuMark Jones, (2013) conducted cross sectional study on the prevalence and risk factors of dysmenorrhea. They identified that dysmenorrhea varies between 16% and 90% in women of reproductive age with severe pain in 2%- of the women studied. Dysmenorrhea is a significant symptom for a large proportion of women of reproductive age; however severe pain limiting daily activities is less common.

Anil.K.Anju, (2010), conducted an explorative survey to study the evidence of severity of the problem with associated symptoms and general health status during dysmenorrhea among higher secondary school students in Gwalior. The prevalence of dysmenorrheal in adolescent girls was found to be 79.67%. Most of them 37.96% suffered regularly from dysmenorrhea severity. The three most common symptoms present on both days, that is day before and day first day of menstruation were lethargy and tiredness(first), depression(second) and inability to concentrate in work(third) whereas the ranking of these symptoms on the day after the stoppage of menstruation showed depression as the first common symptoms.

Nayana S. George, Sheela shetty, (2014), conducted a descriptive survey to among 233 adolescent girls in four residential schools in Udupi to identify dysmenorrhea characteristics and associated symptoms. The founded that tridness 110(75.34%), back ache 106(72.60%) and irritability 97(66.43%) were common symptoms associated with dysmenorrhea. A positive association was found between dysmenorrhea and family history. They concluded that dysmenorrhea is a very common problem among adolescent girls. The findings of this study indicate the magnitude of the problem and the need for appropriate intervention through a change in lifestyle.

Ashraf T. Soliman, Heba Elsedfy, (2016), conducted a study of dysmenorrhea in adolescents and young adults in Oman. Adolescents who missed school due to dysmenorrhea ranged from 7.7% to 57.8% and 21.5% miss social activities. About 50% of students (53.7% to 47.4%) reported a family history of dysmenorrhea. Incidence of dysmenorrhea was 0.97 times lower as age increased ($p< 0.006$). Concluded that the main gynecological complaint of adolescents is dysmenorrhea. It is one of the leading causes of absenteeism from school and work and is responsible for significant diminished quality of life.

Solomon Hailemeskel, (2015), conducted a cross sectional study to assess the magnitude, associated risk factors of primary dysmenorrhea among 440 university students in Ethiopia. Among students with primary dysmenorrhea 88.3% reported that PD had a negative effect on their academic performance. Of these 80% reported school absence, 66.8% reported loss of class concentration, 56.3% reported class absence, 47.4% reported loss of class participation and 21% reported inability to do homework. They concluded that PD has a significant negative impact on students academic performance.

Simarjeet Kaur, Poonam Sheoran, (2015) conducted the study to assess and compare the dysmenorrhea in terms of severity of pain and utilization of NSAIDs among 163 adolescent girls in M.M university Mullana. Numeric pain rating scale and utilization of NSAIDs performa was used to assess serenity of pain and utilization of NSAIDs during menstruation respectively. On the first day of menstruation, there was significant difference in the level of severity of pain among majority of adolescent girls (80%) were experienced severe pain during the menstruation. Oral contraceptives also may help to reduce the severity of pain.

Jenabi, (2010) had done a clinical trial in Iran to assess the effectiveness of ginger in providing relief to patients of primary dysmenorrhea. Participants were 70 female students and results were 20 (82.85%) students in ginger group reported an improvement in nausea symptoms compared with 16(47.05%) in the placebo group and concluded that ginger is effective in minimizing the pain and severity in primary dysmenorrhea.

Shenbagam, (2012) has conducted an experimental study on effectiveness of progressive muscle relaxation exercise in reducing menstrual pain of primary dysmenorrhea. Participants were 60 adolescent girls and concluded that progressive muscle relaxation exercise is effective in reducing the pain (measurement by visual analogue scale) and severity in primary dysmenorrhea.

Investigators during her experience as nursing tutor found that many students had missed classes due to dysmenorrhea. They also had difficulty in working clinical setting during menstruation. And also there was lack of studies related to this study. This motivated the researcher to conduct a study on Jacobson’s relaxation technique in alleviating the dysmenorrhea among adolescent students.

STATEMENT OF THE PROBLEM

PROBLEM STATEMENT

A study to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhea among school going adolescent girls in selected schools at Madurai in Tamilnadu, India.

OBJECTIVES

- To assess the pre-test and post-test level of dysmenorrhea among school going adolescent girls in the experimental group before and after Jacobson's relaxation technique.
- To assess the pre-test and post test level of dysmenorrhea among school going adolescent girls in the control group.
- To evaluate the effectiveness of Jacobson's relaxation technique on dysmenorrhea among school going adolescent girls.
- To find out the association between post- test level of dysmenorrhea and their selected demographic variables such as age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern.

HYPOTHESES

All the hypotheses will be tested at 0.05 level of significance.

H_1

The mean post-test dysmenorrhea score will be significantly lesser than the mean pre-test dysmenorrhea score of adolescent girls who are receiving Jacobson's relaxation technique in the experimental group.

H_2

The mean post-test dysmenorrhea score of adolescent girls with dysmenorrhea in the experimental group who are receiving Jacobson's relaxation technique will be significantly lesser than the mean post test dysmenorrhea score of adolescent girls with in control group.

H_3

There will be significant association between the mean post-test dysmenorrhea score of the adolescent girls with who are receiving Jacobson's relaxation technique and their selected demographic variables such as age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern.

OPERATIONAL DEFINITIONS

1. Effectiveness

Refers to the degree to which objectives are achieved and the extent to which the target problems are solved.

In this study effectiveness of the reduction in dysmenorrhea scores after the Jacobson's relaxation technique as measured by visual analogue scale.

2. Jacobson's Relaxation Technique:

It refers to a programme of relaxation based on relaxing body muscle and muscle groups. PMRT (progressive muscle relaxation technique) is relaxation technique developed by Edmund Jacobson.

In this study the subjects were made to sit on chair. The exercise is started by raising the eyebrows and there by stretching the forehead followed by that face, neck, chest, abdomen, back, arms, thighs, legs and toes were stretched. Then subjects were encouraged to breath in and breath out through nose slowly and deeply. Breath the air

down into their abdomen first then chest later on throat. The subjects have to hold the breath and slowly breath in our through their nose. This helps them to feel relaxed and hence breath tense up whereas breath out relax them. In this study jacobson's relaxation technique was termed as progressive muscle relaxation technique.

3. Dysmenorrhea:

Dysmenorrhea is a gynecological medical condition of pain during menstruation that interferes with daily activities. In addition to cramping during periods, girls may have other symptoms like nausea, vomiting, loose bowel movements/ diarrhea, constipation, bloating in belly area, headaches and light giddiness (feeling faint).

In this study dysmenorrhea refers to adolescent's experience of painful menstrual cramps in the lower abdomen lasting for 3 days along with the above associated symptoms without pathological lesions as measured by the visual analogue scale.

5. Adolescent Girls:

Adolescence is a transitional stage of physical and psychological human development generally occurring between puberty and adulthood.

In this study 'adolescent girls' refers to the girls in the age group of 13-18 years and who suffer with dysmenorrhea.

6. Selected Demographic Variables:

In this study demographic variables include age, age at menarche, duration of menstruation, frequency of menstruation, family history of dysmenorrhea and dietary pattern.

ASSUMPTIONS

The study assumes that,

- Adolescent girls have dysmenorrhea which affects their daily activities.
- Jacobson's relaxation technique will have no adverse effect on adolescent girls who are practicing it.
- Adolescent girls who are taught Jacobson's relaxation technique will have no difficulty in practicing it.

DELIMITATIONS

The study is delimited to,

- Adolescent girls between 13-18 years who are going to school.
- Data collection period is limited to 6 weeks only.
- Done only in School setting.

PROJECTED OUTCOME

The findings will highlight and strengthen the already tested theoretical literature that, dysmenorrhea vary from individual to individual. The health professionals can teach the adolescent girls about the effect of Jacobson's relaxation technique on dysmenorrhea.

CONCEPTUAL FRAMEWORK

The conceptual framework in the study is based on the "SISTER CALLISTA ROY'S ADAPTATION MODEL" (1939) which involves five elements. These elements are the Person, Nursing, Health and Environment. The adoptive system has four components like input, process, effectors and output.

Person

Roy stated that the recipient of nursing care may be individual, family, a group, a community, or a society. Each is considered as an adoptive system. In this study the focus will be on the individual (adolescent girls school going student who is having dysmenorrhea as an inclusion criteria)

Regulator and Cognator sub system

The constant interaction of persons with their environment is characterized by both internal and external changes, in their world. Person must maintain their own integrity; both the sub systems (regulator and cognator sub systems) consist of input, process and output.

Regulator subsystem controls internal process related to physiological needs. Cognator Subsystem controls internal process related to high brain function such as perception, information, processing learning from past experience, judgment and emotions. In this study, cognator subsystem is a physiological symptom on during dysmenorrhea.

Input

Roy's says input is a stimuli which is coming from the environment or from within a person. In this study dysmenorrhea will be considered as an input.

Process

According to their theory, process refers to the adaptive changes taking place internally (cognator subsystem) realism in the system. In this study the process refers to the Jacobson's relaxation technique that has greater reduction in severity of pain for adolescent girls with dysmenorrhea.

Output

Output is the outcome of the system, the system being person. Output refers to the person's behavior. Output is categorized as adoptive response to Jacobson's relaxation technique among school going adolescent girls with dysmenorrhea. In this study, positive and negative to response to Jacobson's relaxation technique becomes the output. In this case negative result becomes the feedback where it must be reassessed to make modification in the treatment approach.

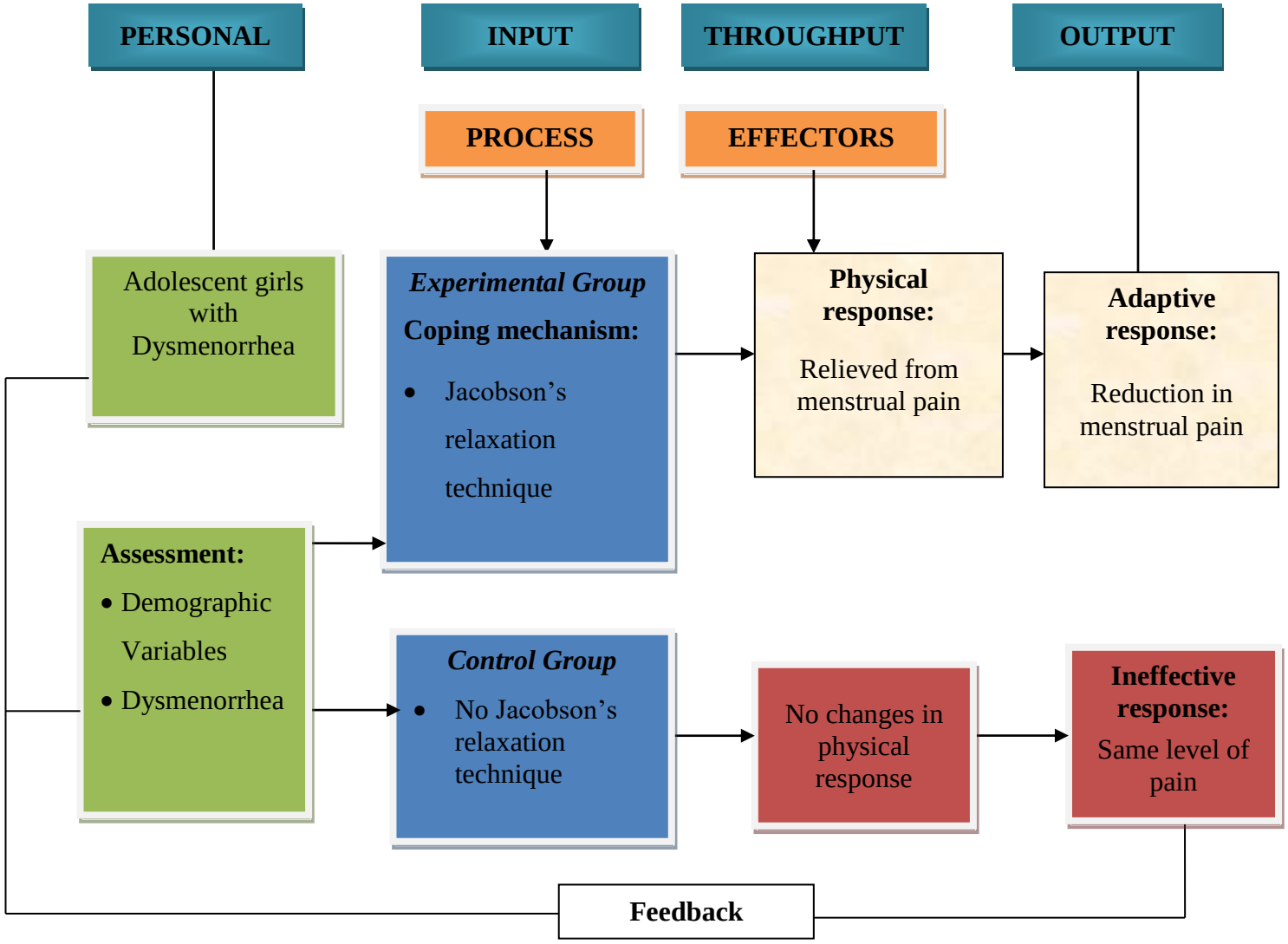


Figure 1: "SISTER CALLISTA ROY'S ADAPTATION MODEL"

CHAPTER – II

REVIEW OF LITERATURE

Researcher typically undertaken a thorough literature review as an early step in a study. This chapter describes activities associated with literature reviews including locating and critiquing studies. (Polit & Beck, 2017).

This chapter contains various sections as follows,

i. Overview of menstrual cycle.

ii. Literature and studies related to dysmenorrhea.

iii. Literature and studies related to effects of dysmenorrhea.

iv. Literature and studies related to complementary and alternative therapy.

v. Studies based on the effectiveness of jacobson's relaxation technique on dysmenorrhea.

I. OVERVIEW OF MENSTRUAL CYCLE

The menstrual cycle or endometrial cycle is the name given to the physiological changes that occur in the uterus which is essential to receive the fertilized oocyte. Menstruation is the visible manifestation of cyclic physiologic uterine bleeding due to shedding of the endometrium.

Early proliferative phase

Early proliferative phase follows menstruation and lasts up to 9 days (5-9days)

Late proliferative phase

Late proliferative phase continues up to 14 days until ovulation. On completion of this phase the endometrium consists of three layers:

- 1.The basal layer
- 2.The functional layer
- 3.The spongy layer

Secretory phase

Secretory phase follows ovulation and is under the influence of progesterone and estrogen from the corpus luteum. This phase lasts up to 26 days.

Premenstrual phase

Premenstrual phase corresponds to the regression of the corpus luteum and declines in the levels of ovarian hormones and lasts from day 27 t0 28.

Menstrual phase

Menstrual phase is characterized by vaginal bleeding and lasts for 3-5 days. Physiologically this is the last phase of the menstrual cycle. The endometrium shed up to the basal layer along with blood from capillaries and the unfertilized ovum.

Hypothalamic – pituitary cycle

Towards the end of the normal menstrual cycle blood levels of estrogen and progesterone decrease. Low blood levels of these ovarian hormones stimulate the hypothalamus to secrete gonadotropin releasing hormone (GnRH). In turn, GnRH stimulates anterior pituitary secretion of follicle stimulating hormone (FSH). FSH stimulates development of ovarian graafian follicels and their production of estrogen. Estrogen levels begin to decrease and hypothalamic GnRH triggers the anterior pituitary to release luteinizing hormone (LH).

A marked surge of LH and a smaller peak of estrogen (day 12). Precede the expulsion of the ovum from the graafian follicle by about 24 to 36 hours. LH peaks at about day 13 or 14 of a 28 day cycle. If fertilization and implantation of the ovum have not occurred by this time regression of the corpus luteum follows. Level of progesterone and estrogen decline menstruation occurs and the hypothalamus is once again stimulated to secrete GnRH. This process is called the hypothalamic pituitary cycle.

Characteristics of normal menstrual cycle is to attain menarche - average age at onset 12 years; interval between cycles at an average of 28 days; duration of menstrual flow an average of 2-7 days; amount of menstrual flow is approximately 30- 80ml per menstrual period.(Adele Pillitteri, 2010).

II. LITERATURE AND STUDIES RELATED TO DYSMENORRHEA:

(a) DEFINITION

Dysmenorrhea means painful menstruation of sufficient magnitude so as to incapacitate day to day activities. (Dutta, 2012).

Menstrual pain is also known as dysmenorrhea or period pains, ranges from dull and annoying to severe and extreme. Menstrual cramps tends to begin after ovulation when an egg is released from the ovaries and travels down the fallopian tube. Pain occurs in the lower abdomen and lower back. It usually begins with in 1 or 2 days before menstruation and lasts for 2 to 4 days. (Peter Crosta, 2017).

(b) EPIDEMIOLOGY

Incidence of primary dysmenorrhea of sufficient magnitude with in capacitation is about 15 to 20 percentage. (Dutta, 2013).

Grandi, Ferrasi and Xholli, (2010) conducted a cross section analytical study about prevalence of menstrual pain among adolescent girls in Italy. Menstrual pain was reported by 84.1% of women, out of that 43.1% reports pain occur during every period and 41% reports that pain occur during some cycle of menstruation. In 55.2% consider other parameters for menstrual pain (medication and complementary and alternative therapies).

Atkindi and Bulushi. (2010) conducted a cross sectional survey among 404 girls from two public high schools in the Muscat. Overall 94% of the participants had dysmenorrhea. It was mild in 27% (n=104) , moderate in 41% (n=155) and severe in

32% (n=121). Dysmenorrhea was the cause of limited sports activities in 81%, decreased class concentration in 75%, restricted homework in 59%, school absenteeism in 45%, limited social activities in 25% and decreased academic performance in 8% of the affected students.

(c) ETIOLOGY:

The etiological factors of dysmenorrhea are as follows:

- Mostly confined to the adolescents.
- Almost always confined to the ovulatory cycles.
- The pain is usually cured following pregnancy and vaginal delivery.
- The pain related to dysrhythmic uterine contraction and uterine hypoxia.

Others factors:

- Psychosomatic factors
- Uterine myometrial hyperactivity
- Imbalance in autonomic nervous control of uterine muscle
- Clots, tissues and narrow canals
- Role of Prostaglandin
- Role of Vasopressin
- Endothelins
- Platelet activating factor(PAF)
- Leukotriens

1. Psychosomatic factors:

Psychosomatic factors results in tension and anxiety during adolescence which may lower the pain threshold and aggravates the factors in pain perception.

2. Uterine myometrial hyperactivity

Uterine myometrial hyper activity observed in primary dysmenorrhea. The outer myometrium and the subendometrial myometrium are found to be different structurally and functionally. The subendometrial layer of myometrium is known as junctional zone(JZ). Changes in the JZ includes irregular thickening and hyperplasia of the smooth muscles and less vascularity this is known as **JZ hyperplasia**. Dysperistalsis and hyperactivity of the uterine JZ are the important mechanism of primary dysmenorrhea.

3. Imbalance in autonomic nervous control of uterine muscle

The over activity of sympathetic nerves results in hypertonisity of the circular fibers of the isthumus and internal os. The relief of pain following dilatation of the cervix or following vaginal delivery which results in damage of **adrenergic neurons** which fails to regenerate.

4. Clots, Tissue, and narrow canals

Blood tissues and clots from the uterine lining can make the cramping worse due to a narrow canal because this can exacerbate menstrual cramping, the relief of pain followed by dilatation of the cervix or after vaginal delivery which results in damage of the **adrenergic neurons** which fails to regenerate.

5. Role of Prostaglandins:

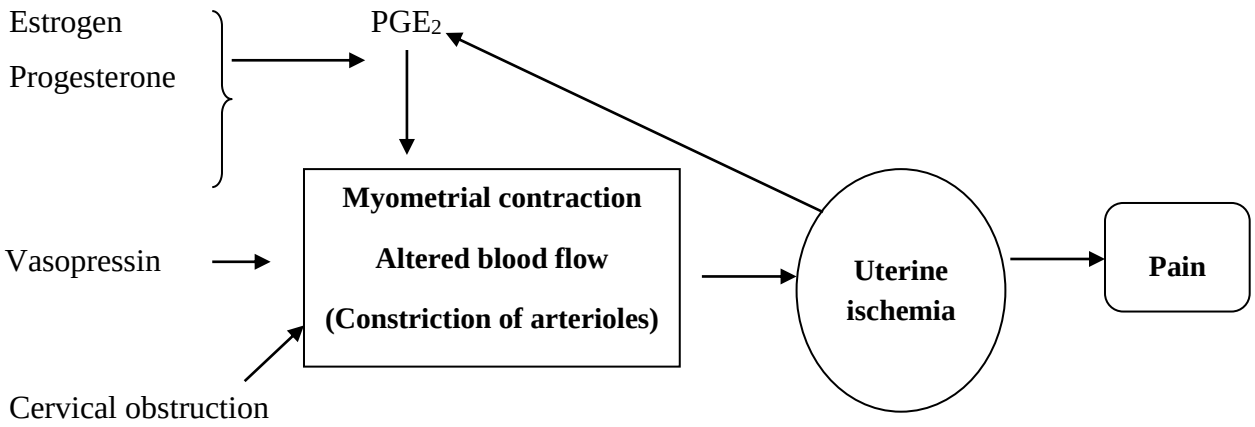
In ovulatory cycles under the action of progesterone, prostaglandins ($PGF_2\ \alpha$, PGE_2) are synthesized from secretory endometrium. Prostaglandins are released with maximum production during shedding of endometrium. $PGF_2\ \alpha$ is a strong vasoconstrictor which causes ischemia (angina) of the myometrium. M. Y. Dawood, (2012) conducted a study on prostaglandin in primary dysmenorrhea. 50% of post pubescent females suffer from dysmenorrhea, and 10% are incapacitated for 1 to 3 days each month. Many of these patients have an increased synthesis of prostaglandins in their endometrial tissue

with increased prostaglandin release in the menstrual fluid. The increased amount of prostaglandins induces in coordinate hyperactivity of the uterine muscle resulting in uterine ischemia and pain. Recent clinical and laboratory studies have shown that many of the non-steroidal anti-inflammatory drugs such as ibuprofen, naproxen, flufenamic acid, mefenamic acid and indomethacin are capable of relieving primary dysmenorrhea. These drugs are inhibitors of the prostaglandin synthetase enzymes which are necessary for prostaglandin biosynthesis. Thus, with ibuprofen it has been shown that clinical relief of the dysmenorrhea.

6. Role of Vasopressin:

There is an increased vasopressin release during menstruation in women with primary dysmenorrhea. This explains that persistence of pain in cases even treated with anti prostaglandin drugs. The mechanism of action in vasopressin increases prostaglandin synthesis and also increases myometrial activity. It causes uterine hyper activity, dysrhythmic contractions leads to ischemia results hypoxia and pain.

Theoretically increased levels of circulating vasopressin during menstruation can produce uterine contractions that reduce blood flow and cause hypoxia. (Rama, 2013).



7. Endothelins:

Endothelins causes myometrial smooth muscle contractions. Specially in the endomyometrial junction (JZ). Endothelins in endometrium induces PGF_2 α . local myometrial ischemia caused by endothelins and $PGF_2\alpha$ aggravate uterine dysperistalsis and hyper activity.

8. Platelet Activating Factor (PAF)

Platelet activating factors are also associated with dysmenorrhea as its concentration is high and platelet activating factors are vasoconstrictions which stimulate myometrial contractions. (Dutta, 2013).

9. Leukotrienes:

Leukotrienes (*mediators of inflammation*) contracts the smooth musculature which have been postulated to heighten the sensitivity of pain fibers in the uterus. Significant amount of leukotrienes present in the endometrium which results in primary dysmenorrhea.

(d) SYMPTOMS OF DYSMENORRHEA :

PAIN

Type:

- Confined to ovulatory cycle.
- Spasmodic in nature.
- Begins a few hours before or just with the onset of menstruation.

Severity:

- Lasts for few hours.
- May extend to 24 hours.
- Seldom persists beyond 48 hours.

Confined to:

- Lower abdomen only.

Radiates to:

- Radiate to back and medial aspects of thigh.

Systemic discomforts:

- Like nausea, vomiting, fatigue, diarrhea, headache is evident

Vasomotor changes:

- Results in pallor, cold sweats and occasional fainting, rarely syncope and collapse in severe cases.

(e) TREATMENT FOR DYSMENORRHEA:

General measures include improvement of general health along with proper explanation and assurance.

1. Drug Therapies:

The drugs used are prostaglandin synthetase inhibitors and oral contraceptives (combined estrogen and progesterone).

Commonly used NSAIDs such as fenamate group(mefanamic acid), propinic acid derivatives (ibuprofen) and indomethacin.

Initial treatment is focused on relieving pain. Non-steroidal anti-inflammatory drugs (NSAIDs), helps to relieve pain during dysmenorrhea. They can cause stomach upset. Hence taking them with food may help. Long-term use can increase the risk of stomach bleeding

Hans- Peter Zahradnik,(2012), conducted review study of a non steroidal anti inflammatory drugs and hormonal contraceptives for pain relief from dysmenorrhea among university students in Germany. The findings of this study support the use of NSAIDs as a first line therapy for pain relieves from dysmenorrhea.

Ayeleke RO, (2015) conducted a study on effectiveness and safety of NSAIDs in the treatment of primary dysmenorrhoea among 58 womens. They concluded that NSAIDs appear to be a very effective treatment for dysmenorrhoea, though women using them need to be aware of the substantial risk of adverse effects.

2. Complementary and Alternative Therapies:

- Heat
- Massage
- Exercise
- Herbs
- Nutrition

HEAT:

Heat (heating pad or hot bath) minimizes menstrual pain by increasing vasodilation, muscle relaxation and minimizing the uterine ischemia.

Ani Grace Kalaimathi, (2016) conducted a pre experimental study on hot application on dysmenorrhea among 130 adolescent girls in Billroth college of nursing. The major findings regarding dysmenorrhea in the pretest most of the adolescent girls (53.33%) had very severe pain , 33% had severe pain and 6.7% had worst pain. But in posttest 63% girls had no pain , 30% had mild pain and only 6.66% had moderate pain. Paired ‘t’ test shows ‘t’ level of 20.63 which is significantat $p<0.05$ level. The study findings revealed that there was a singnificant reduction in level of dysmenorrhea among adolescent girls after giving hot application.

MASSAGE:

Massaging the lower back can reduce pain by relaxing paravertebral muscles and increasing pelvic blood supply. Soft rhythmic rubbing of the abdomen (effleurage) may be useful because it provides distraction and an alternative focal point.

Sridevi, (2013), conducted quasi experimental study of rose oil massage on dysmenorrhea among adolescent girls in school. The researcher found result that the rose oil massage more effective in relief the dysmenorrhea.

EXERCISE:

Exercise has been found to help in relieving menstrual discomfort through increased vasodilation and subsequently decreased ischemia. The release of endogenous opiates, specifically ß-endorphins suppress the prostaglandins and shunting of blood flow away from the viscera, resulting in less pelvic congestions. Specific exercises that nurses can suggest to their clients include pelvic rock and heels-over-the-head yoga position, exercise at least 30 minutes daily 5 days a week.

Rahab, (2016) review on exercise therapy on pain with primary dysmenorrhea in Nigeria. A systematic review of experimental studies was executed with a meta analysis of randomized trials. Concluded that the exercise therapy showed evidence of pain reduction in primary dysmenorrhea.

3. Herbs:

Herbal preparations have long been used for management of menstrual problems including dysmenorrhea. Few herbal preparations are Black hawk, Black cohosh root and Ginger (Lowdermilk, 2004).

4. Nutrition and supplements:

- Intake of foods that are rich in calcium that includes beans, almonds and dark green leafy vegetables.
- Intake of fruits and vegetables which are high in anti oxidants.
- Intake of more lean meats, cold-water fish, tofu(soy if no allergy),or beans for protein.
- Consuming 6-8 glasses of water daily.
- Avoidance of caffeine, alcohol and tobacco.
- Avoidance of refined foods such as white breads, pastas and sugar.

III. LITERATURE AND STUDIES RELATED TO EFFECTS OF DYSMENORRHEA:

Suresh, Wijesiri, (2012) conducted a descriptive study among 200 school girls, 12 years aged girls in a school in Colombo. Data collection was done by using non-probability convenience sampling. There was a statistically significant ($p<0.05$) association between pain and poor mental health status (66%) of the adolescent girls, but there was no significant association between pain and poor physical health ($p= 0.887$) and poor social health status ($p= 0.395$). Bathing was found to affect pain, as reported by 95% of the students. Dysmenorrhea was common among adolescent girls in the study population, and was found to affect their mental status. Health education sessions are important to raise awareness among students of dysmenorrhea.

Harsh Bakshi, Sangita Patel, (2013) conducted study to find prevalence of primary dysmenorrhea among 116 nursing students in Gujarat. They used chi square, chi square for trends, fisher exact test and prevalence rate. Out of 116 students, 52 (45%) had primary and majority (46) of these, had regular menstrual cycles. BMI and

ovarian volume did not demonstrate any significant association with presence of dysmenorrhea and regular menstrual cycle.

Melikian, (2012) conducted the study a prevalence of menstrual pain in Ireland. It occurs in the abdomen or pelvis during menstruation. This discomfort is not normal, but it is extremely common. Over half of all women suffered from pain during their period and surveys show that a staggering 90% of adolescent girls are affected. The pain can range from mild to severe and can potentially interfere with the ability to perform daily activities. During the first half of a woman's cycle, the uterine lining is build up; when the period starts, this extra lining and blood is shed from the uterus. To aid this process, it is normal for the uterus to contract. However, if the contractions are too strong, this process becomes uncomfortable

Dilek Gucayir, Yeşim Yaman, (2016) conducted a descriptive survey on 388 nursing students in Turkey. Of the 388 students surveyed, 92% experienced pain and 69.1% experienced mostly gastrointestinal symptoms. The types of pain experienced by the students were back and waist (59.3%), throat (45.6%), dysmenorrhoea (44.6%), toothache (41%), neck (33.5%), and tension headaches (33%). The non-pharmacological methods most frequently used were heat application, resting in a dark room, massage, drinking hot herbal beverages, and cold application. Concluded that students frequently use non-pharmacological interventions. Therefore the nursing education curriculum should include updated information about the use of non-pharmacological interventions and their usefulness.

Kharaghani Roghieh, (2016) conducted The Prevalence of Dysmenorrhea in Iran. This study is aimed to estimate the overall prevalence of dysmenorrhea in Iran. Twenty-five studies were assessed involving an overall of 9,677 participants, of which 6,748 had primary dysmenorrhea and 280 had secondary dysmenorrhea. The

overall prevalence of primary and secondary dysmenorrhea was 0.71 (95% CI: 0.65, 0.77) and 0.18 (95% CI: 0.03, 0.32).

Sanct De Vincenzo, (2016) conducted the prevalence of Dysmenorrhea in adolescents and young adults in Italy. They were used cross-sectional studies on 41,140 adolescents and young women published from 2010 onward. The prevalence of dysmenorrhea varied from 34 % (Egypt) to 94% (Oman) and the number of participants, reporting very severe pain varied from 0.9 % (Korea) to 59.8% (Bangladesh). Adolescents who missed school due to dysmenorrhoea ranged from 7.7% to 57.8% and 21.5% miss social activities. About 50% of students (53.7%-47.4%) reported a family history of dysmenorrhea. Incidence of dysmenorrhea was 0.97 times lower as age increased ($p < 0.006$).). Despite the high prevalence of dysmenorrhea in adolescents, many girls did not receive professional help or treatment. Mothers were the most important persons the girls turned to for answers regarding menstruation, followed by peers (52.9%) and school nurse. From 21% to 96% practised self–medication either by pharmacological or non pharmacological interventions. The limitation of these studies was that they did not distinguish between primary dysmenorrhea and secondary dysmenorrhea. *:* The main gynecological complaint of adolescents is dysmenorrhea. Morbidity due to dysmenorrhea represents a substantial public health burden. It is one of the leading causes of absenteeism from school and work and is responsible for significant diminished quality of life.

Lee Huang, Wan Ying, (2015) conducted the Prevalence of Primary Dysmenorrhea and Factors Associated with Its Intensity Among Undergraduate Students. A cross-sectional study was carried out among 311 undergraduate female students aged 18 to 27 years in Isfahan University of Medical Sciences, Iran. Socio-

demographic characteristics and menstrual factors were obtained through interviews with the help of a pretested questionnaire. The prevalence of primary dysmenorrhea was 89.1%. Primary dysmenorrhea is a common health concern among young women. Being aware of the factors that are associated with its intensity makes it possible for health professionals to organize better focused programs to reduce the adverse effects of dysmenorrhea.

Abebe Basazn et al, (2017) conducted the Prevalence, Impact, and Management Practice of Dysmenorrhea among University of Gondar Students, Northwestern Ethiopia. Descriptive and binary logistic regression analyses were used to describe and assess the association between different variables. Results. More than two-thirds (75.3%) of the respondents were nonmedical students and the prevalence of dysmenorrhea was 77.6%. About half (50.6%) of the participants reported that they have a family history of dysmenorrhea and experienced continuous type of pain (53%) which lasts 1-2 days (47.8%). Abdominal spasm (70.4%), back pain (69.7%) fatigue, and weakness (63.5%) were the most commonly experienced dysmenorrhea symptoms. More than half (63%) of the respondents had encountered social withdrawal and decrease in academic performance (51.4%). More than two-thirds (63.8%) of the respondents use home remedies as a primary management option. Ibuprofen and diclofenac were the most commonly used medications to manage dysmenorrhea. Conclusions. The present study revealed that high proportion of University of Gondar female students had dysmenorrhea. Findings suggest the need for educating adolescent girls on appropriate and effective management of dysmenorrhea.

Wong L.P, (2009) conducted a large cross sectional study on 1295 adolescent girls (aged 13- 19 years) from 16 public secondary schools in Malaysia.

Dysmenorrhea was reported in76% of the participants. Concentration at school (60%) and participation in social events (59%) have been mostly affected. Multivariate analysis shows that being in upper secondary level was the strongest predictor for poor concentration, absenteeism, and poor school grade due to dysmenorrhea.

Shaji, (2012) conducted a quasi- experimental study on controlling dysmenorrhea among 800 adolescent girls who attained menarche and aged between 12 - 15 years in south Chennai. On the first day using Modified Moos menstrual Distress Questionnaire those who experienced moderate to severe dysmenorrhea were found out and among them those who met the inclusion criteria were separated first. On the second day, their existing knowledge on menstruation, dysmenorrhea and its relieving measures was assessed, using the structured knowledge questionnaire. On the third day structured teaching program on menstruation, dysmenorrhea and its controlling measures was given. After seven days, the post-test was conducted with the same questionnaire, to see the effectiveness of STP in improving the knowledge level. After 40 days MMDQ was administered to the same group. Those girls who experienced mild symptoms were removed and only those who experienced moderate to severe symptoms were administered fish oil supplements 1000mg, one capsule daily for two months. The study findings revealed that the STP and fish oil supplement together were effective in reducing the severity of dysmenorrhea of adolescent girls than STP alone.

IV. LITERATURE AND STUDIES RELATED TO COMPLIMENTARY AND ALTERNATIVE THERAPY

Hingle, (2011) conducted a cross sectional study on massage for menstrual disturbances in Bangalore. Massage also promotes relaxation to the body’s mechanoreceptors which interpret warmth, pressure and touch to be relaxation

mechanisms. Massage improves muscle tone, eliminates muscle knots, relieves muscle spasms and cramps, decreases muscle swelling and reduces scar tissue and also massage lowers blood pressure accelerates metabolic waste and increases tissue nutrition which in turn improves circulation and stimulates blood flow throughout the deeper veins and arteries. Massage also help menstruating women reduce PMS associated anxiety, depression and decrease fluid retention.

Nally, (2011) conducted a study on massage technique in Baltimore. Human touch as been shown to be emotionally and physically healing. Particular massage techniques may either stimulate or calm the body's muscles and tissues to create a desired effect. When a practitioner massages soft tissue, electrical signals are transmitted both to the local area and throughout the body. These signals in combination with the healing properties of touch, health heal damaged muscle, stimulate circulation, clear waste products via the lymphatic system boost the activity of the immune system, reduce pain, tension and induce a calming effect. Massage may also enhance well being by stimulating the release of endorphins (natural painkillers and mood elevators) and reducing levels of certain stress hormones .

Sridevi, (2013) conducted a quasi- experimental study on 60 adolescents in two girls higher secondary school Meenakshi Sundareswara and Mangaryarkarasi in Madurai. The experimental group received 15- 20mts of abdominal massage with rose oil (3 drops of rose oil diluted with one teaspoon of coconut oil (5ml) once a day daily for 7 days, before the onset of menstruation and continuing until menstruation began. The rose oil massage was effective in reducing menstrual cramps as evidenced by statistically significant therapeutic use of essential oil obtained from plants was administered to the experimental group. The result of the study revealed that the significance of difference between the mean pre test and post test pain score in

experimental group which was statistically tested and was found to be highly significant at 0.05 level of significance($p<0.05$) and the significance of difference between the mean post test. 1,2,3 pain scores between experimental and control group which was statistically tested using independent 't' test was found to be highly significant at 0.05 level of significance (+158) = 9.97, 6.56, 4.02 ; P = <0.05).

Beliby et al, (2009) conducted a randomized controlled trial compare acupuncture with control acupuncture using a placebo needle in Australia. A total of 92 women were randomly assigned to the intervention (acupuncture n=46 and control n=46). At 3 months although pain outcomes were lower for women in the acupuncture group and compare with the control group there was no significant difference between the groups. Women receiving acupuncture reported a small reduction in mood changes compared with the control group relative risk(RR) 0.72,95% confidence interval (CI) 0.53-1.00, p=.05. Follow-up at 6 months found a significant reduction in the duration of menstrual pain in the acupuncture group compared with the control group mean difference- 9.6, 95% CI- 18.9 to0.3, P=.04 and the need for additional analgesia was significantly lower in the acupuncture group compared with the control group, RR- 0.68, 95% CI- 0.49- 0.96, p=.03 but the follow up at 12 months found lack of treatment effect. To conclude although acupuncture improve menstrual mood symptoms in women with primary dysmenorrhea during the treatment phase the trend in the improvement of symptoms during the active phase of treatment and at 6 and 12 months was non-significant including that a small treatment effect from acupuncture on dysmenorrhea may exist. In this study, it was found that acupuncture was acceptable and safe.

Wong, (2009) conducted a study to evaluate the effects of (SP 6) acupressure in reducing the pain level and menstrual distress resulting from dysmenorrhea in

Malaysia. Forty patients with dysmenorrhea were assigned to the acupressure group (n=19) and the control group (n=21). The group received 20mts of SP6 acupressure during the initial intervention session and was taught to perform the technique for them to do twice a day from the first to third days of their menstrual cycle for 3 months subsequent to the first session. In contrast to the control group was told only to rest. There was a statistically significant decrease in pain score for VAS immediately after the 20mts of SP6 acupressure. So SP6 acupressure has an immediate pain relieving effect for dysmenorrhea. Moreover, acupressure applied to the SP6 point for three consecutive months was effective in relieving in both the pain and menstrual distress level resulting from dysmenorrhea.

Ambika and William, (2013) conducted a quasi- experimental study to assess the effectiveness of aromatherapy on dysmenorrhea among 60 adolescent girls in selected schools at Mysore. Both experimental and control group the tool and study design were to be feasible. Data were collected using standardized numerical visual analogue scale. Aromatherapy is the girls had no significant association with their selected personal variables except regularity of menstruation which is partially supported. The study concluded that aromatherapy was effective method to reduce the dysmenorrhea of adolescent girls.

Shivani, Motahari, (2014) conducted a study was to compare the effect of mefanamic acid and ginger on pain management in primary dysmenorrhea. One hundred and twenty two female students with moderate to severe dysmenorrhea were randomly allocated to the ginger and mefanamic groups in randomized clinical trial. The mefanamic group received 250 mg capsules every 8 hrs and the ginger group received 250mg capsules (Zintoma) every 6 hrs from the onset menstruation until pain relief lasted 2 cycles. The intensity of pain was assessed by visual analogue scale.

Data were analyzed by descriptive statistics, ‘t’ test, chi- square, fisher exact test and repeated measurement. The pain intensity in the mefanamic and ginger group was 39.01±17.77 and 43.49±19.99 in the second month ($p>0.05$). The severity of dysmenorrhea pain duration, cycle and bleeding volume was not significantly different between groups during the study. The menstrual days were more in the group in the first ($p=0.01$) and second cycle ($p=0.04$). Repeated measurement showed a significant difference in pain intensity within the groups in pain intensity within the groups by time, but not between groups. Ginger is an effective as mefanamic acid on pain relief in primary dysmenorrhea. Ginger does not have adverse effects and is an alternative treatment for primary dysmenorrhea.

Karuna Boopathi, (2015) conducted a quasi conducted a quasi- experimental study to assess the effectiveness of dried ginger powder consumption on dysmenorrhea among 60 adolescent girls in E.M. Gopalakrishnan Yadava Women’s College, Madurai. The experimental group intake of 500 mg dried ginger powder 5 grams of palm jiggery 2 times a day for three days from the starting of menstruation. The result of the study revealed that the significance of difference between the mean pre test and post test pain score in experimental group which was statistically tested and was found to be highly significant at 0.05 level of significance($p<0.05$) and the significance of difference between the mean post test. The study concluded that aromatherapy was effective method to reduce the dysmenorrhea of adolescent girls.

Vasantha. S, (2014) conducted a quasi experimental study on yoga in primary dysmenorrhea selected schools and 300 adolescent girls who had primary dysmenorrhea were selected by simple random sampling method. Data was collected by using Numerical pain intensity scale for pain and Likert scale for associated factors of primary dysmenorrhea. Pretest was conducted during menstruation and Yoga

therapy was given to experimental group (150) for 3months and for control group (150) no intervention was given. The posttest was conducted after 3 subsequent menstrual cycles for both groups. The major findings of the study showed that there was a significant difference in the pain scores and associated factors scores of experimental and control group. The pain scores of primary dysmenorrhea was significantly different at 0.001 level of significance among experimental and control group showed that yoga therapy was one of the definite alternative therapy to treat primary dysmenorrhea.

V. STUDIES BASED ON THE EFFECTIVENESS OF JACOBSON'S RELAXATION TECHNIQUE ON DYSMENORRHEA

Ukachukwu Okoroafor Abaraogu, et al, (2015) reviewed a study on effectiveness of exercise therapy on pain and quality of life of women with primary dysmenorrhea. A systemic review of experimental studies was executed with a Meta analysis of randomized trials. Using the PED or guidelines for quality appraisal, 12 electronic databases were accessed that recorded studies on exercise interventions in women with primary dysmenorrhea using menstrual pain intensity and quality of life as primary outcomes respectively. The review showed moderate methodological quality with the mean of 5.65 out of 10 on the PED or quality scale. Exercise therapy showed evidence of pain reduction in primary dysmenorrhea.

Rostami M, (2013) conducted a study to determine the relaxation exercise on primary dysmenorrhea. The study was a randomized clinical trial of 150 high school girls in solayman city who are suffering from severe dysmenorrhea. The experimental group was given relaxation exercise for half to one hour a day on the day of menstruation on a cycle and the results after the relaxation exercise were registered. The descriptive statistics were used for analyzing the statistical information. The results showed that

the intensity of the pain in the experimental group declined from 8.59 to 4.63 in first menstrual period. Concluded that the relaxation exercise can decrease the duration and severity of dysmenorrhea in high school girls.

Rima Gupt et al, (2013) conducted a quasi- experimental study among 64 adolescent girls in nursing college in Chandigarh and Mohali. They are randomized by two groups. A standardized tool of numerical rating scale (NRS) and Menstrual Distress Questionnaire (MDQ) were used for assessing the severity of primary dysmenorrhea. Students in the group 1 were given dietary ginger 500gm twice in a day for three days starting from the day of menstruation and active exercises twice in a day except on the days of menstruation. Students in group 2 were given demonstration of active exercises and instructed to do it twice in a day except on the day menstruation. At the end of follow up significant difference was found in pain relief between both groups. Thus it concludes that combined effect of ginger and exercise have higher efficacy than exercise alone.

Michael Ben-Menachem, (2014) conducted a study on relaxation technique on dysmenorrhea. Relaxation technique was used to treat ten high schools aged girls suffering from dysmenorrhea. A self judgment sheet was used to evaluate the results. The treatment group improved significantly (p less than 0.01) on the symptoms “pain” and “nausea” and on “difficult to concentrate”, “unambitious” and “being irritable”(p less than 0.05).

Miller D, (2015) conducted a study to evaluate the effectiveness of relaxation exercise to reduce the intensity of menstrual pain in primary dysmenorrhea among 70 adolescent girls. The outcomes assessments are done at first menstrual period. The results of the study was relaxation exercise to reduce the pain in primary dysmenorrhea.

Jutta Kran, (2012) conducted a experimental study in Germany among 55 adolescent girls (14-19 years) with primary dysmenorrhea. They were randomized assigned by 30 in experimental group and 25 in control group using numerical pain scale. Experimental group practiced jacobson's relaxation technique for 30-40 minutes. No intervention for control group. Jacobson's relaxation technique was effective in reducing the menstrual pain during the primary dysmenorrhea.

CHAPTER - III

RESEARCH METHODOLOGY

The methodology of study includes research design, the setting of the study sample, and the sampling technique. It further deals with the development of tool procedure for data collection and plan for data analysis which are also part of the study.

This chapter deals with the methodology that was selected by the investigated in order to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhea among adolescent girls in selected school at Madurai.

RESEARCH APPROACH

Quantitative research approach was used to achieve the objectives of the study.

RESEARCH DESGIN

Quasi experimental non equivalent pre test post test control group research design was adopted to determine the efficacy of Jacobson's relaxation technique on dysmenorrhea.

Group	Measurement of dependent variable	Manipulation of independent variable	Measurement of dependent variable
Experimental group	O1	X	O2
Control group	O1		O2

Keys:

X : intervention Jacobson's relaxation technique

O1 : pretest of the experimental group

O2 : post test of the experimental group

O1 : pretest of the control group

O2 : post test of the control group

VARIABLES

Independent variable - Jacobson's relaxation technique

Dependent variable - dysmenorrhea

SETTING OF THE STUDY

The study was conducted in CSI. Girls Higher Secondary School at Madurai which was 20 kilometers away from Sacred Heart Nursing College. The students studying in IXth standard of two sections (N=120) were selected,60 for experimental and 60 for control group. The total number of students studying in this school is 2000.

POPULATION

The target population of the study were the school going adolescent girls who were suffered during dysmenorrhea in selected schools at Madurai.

SAMPLES

The samples of the study were adolescent girls with dysmenorrhea who fulfill the inclusion criteria of the study.

SAMPLE SIZE AND SAMPLING THECNIQUE

All the adolescent girls studying in IXth standard in two sections were screened for dysmenorrhea that is (N=120). The sample size of 60 adolescent girls with moderate to severe dysmenorrhea were selected 30 in experimental group and 30 in control group. The subjects were randomly assigned to the experimental and the control group using convenient sampling technique. Researcher selected only those students who fulfilled the inclusion criteria.

CRITERIA FOR SAMPLE SELECTION

The samples were selected based on the following criteria.

INCLUSION CRITERIA

- Adolescent girls who have regular menstrual cycle along with their 1st day of menstruation.
- Adolescent girls who are in the age group of 13-18years.
- Adolescent girls who scores above 6.
- Adolescent girls who are willing to participate.
- Adolescent girls who can understand and speak both Tamil/English.

EXCLUSION CRITERIA FOR SAMPLING

- Adolescent girls with irregular menstrual cycle.
- Adolescent girls who are married.
- Adolescent girls who are suffering from gynaecological disorders like endometriosis, fibroids, adenomyosis, endometrial polyps.(secondary dysmenorrhea)
- Adolescent girls who are taking medication for dysmenorrhea.

RESEARCH TOOL AND TECHNIQUE

The tool for the present study consisted of two sections;

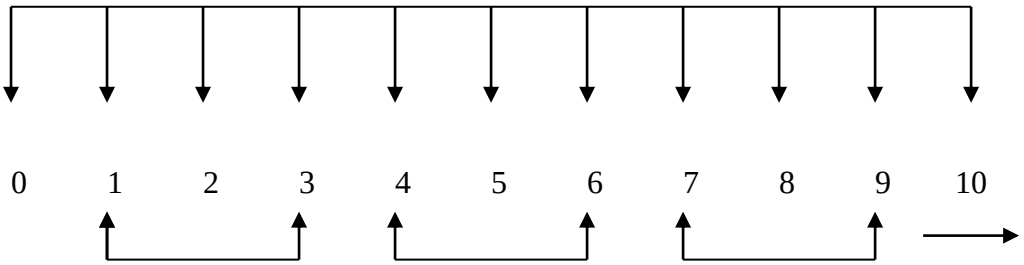
1. Demographic profile.
2. Visual Analogue Scale.

Part A: DEMOGRAPHIC PROFILE

Part A consists of demographic variables such as age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern.

Part B: VISUAL ANALOGUE PAIN SCALE

On 1983, Wong - Baker developed the Visual analogue scale. Visual analogue scale was used to assess the pain during menstruation. In the visual analogue scale the horizontal line with “no pain” which was written at one end an “unbearable pain” written at the other end. According to point scale, based on the level of pain in the samples to inform the number of the researcher



INTERPRETATION

0	-	No Pain
1-3	-	Mild
4-6	-	Moderate
7-9	-	Severe
10	-	Unbearable pain

DEVELOPMENT OF INTERVENTION

Step I

Verbal consent was obtained from samples and necessary information about the study was given to the study participants.

Step II

In this study the subjects were made to sit on chair. The exercise is started by raising the eyebrows and there by stretching the forehead followed by that face, neck, chest, abdomen, back, arms, thighs, legs and toes were stretched. Then subjects were

encouraged to breath in and breath out through nose slowly and deeply. Breath the air down into their abdomen first then chest later on throat. The subjects have to hold the breath and slowly breath it out through their nose. This helps them to feel relaxed and hence taking and deep breath (tense up) and letting it out (relax). In this study jacobson's relaxation technique was termed as progressive muscle relaxation technique. This technique helps to reduce the severity of dysmenorrhea. During the 1st day of menstruation Jacobson's relaxation technique was administered for 30 minutes twice a day (morning and evening).

Step III

Experimental group received Jacobson's relaxation technique twice a day on the day of menstruation.

Step IV

The investigator ensured privacy and dignity of the students during the study process.

TESTING OF THE TOOL

VALIDITY

Validity refers to the degree with which an instrument measures what it is supposed to measuring (Polit and Hungler, 2013). The tool was translated into Tamil and English by language experts. The validity tool was established by 5experts in the field of gynecologist, psychotherapist, obstetrician, two nursing experts and statistician.

RELIABILITY

The reliability of the Visual Analogue Scale was demonstrated by inter rater method and obtained value was r = 0.8, which showed that tool was reliable.

PILOT STUDY

In order to test the feasibility, relevance and practicability of the study, pilot study was conducted among 6 students who were studying at Thiyagarajar Higher Secondary School. Data were analyzed to find out the stability of the statistical method. The pilot study finding revealed that the study findings were feasible.

DATA COLLECTION PROCEDURE

The researcher obtained permission from the dissertation committee of sacred heart nursing college. The data collection was done for a period of 6 weeks in the selected school at Madurai, after obtaining permission from the head mistress in selected school, the researcher introduced herself to the participants. The research purpose and nature was explained to them and their verbal consent was obtained. Data were collected from those who met the inclusion criteria. Visual Analogue Pain Scale was used to measure the pain level of the participants. Students who scored above 6 were selected as samples for this study. The experimental group received jacobson's relaxation technique for 30 minutes twice a day on the day of menstruation. The researcher taught jacobson's relaxation technique to the subjects who were gathered in the class room and ensured privacy along with calm and quiet environment where they practice jacobson's relaxation technique. After one hour of practicing jacobson's relaxation technique post test was conducted on the same day of menstruation.

Confidentiality of the study was maintained by mentioning the serial number and not the name of the person. The investigator ensured privacy, dignity and respected the religion as well as cultural belief of the samples during the study process.

DATA COLLECTION SHEDULE

Weeks	Data collection schedule
Weeks – I	Screening for the sample selection
Weeks- II to IV	Pretest, taught about jacobson's relaxation technique, posttest for experimental group
Weeks -V &VI	control group assessment

DATA ANALYSIS

After the data were collected they were organized, tabulated, summarized and analyzed based the objectives of the study. The cumulative scores were used for analysis. In the descriptive statistics frequency, percentage, mean, standard deviations were calculated. As a part of inferential statistics independent 't' test, paired 't' test, chi- square test were calculated and correlated.

PROTECTION FROM HUMAN SUBJECTS

The proposed study was conducted after the approval of the Research Ethical Committee of the college. Permission was obtained from the headmistress in the selected school. Verbal consent of each sample was obtained before the data collection. Assurance was given to each subject regarding the confidentiality of the data and specified that the data is only for the study purpose.

Phase of uterine cycle	**Menstruation Phase**								**Proliferative Phase**							**Luteal Phase**												
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1

Figure No. 2: DAILY ASSESSMENT DAIRY

CHAPTER – IV

ANALYSIS AND INTERPRETATION OF DATA

The organization and synthesis of data so as to answer research questions and test hypothesis.

- Polit and Hungler, (2017)

This chapter deals with the description of the samples, analysis and interpretation of the data collected and achievements of the objectives of the study.

The data collected were organized under the following sections:

Section I: (Table I)

- Describes the demographic variables of the adolescent girls with dysmenorrhea.

Section II: (Table II & III)

- Describes the pretest and posttest levels of dysmenorrhea scores of the adolescent girls in the experimental group.
- Describes the pretest and posttest levels of dysmenorrhea scores of the adolescent girls in the control group.

Section III: (Table IV, V & VI)

- Describes the comparison of posttest dysmenorrhea score in the experimental group.
- Describes the comparison of posttest dysmenorrhea score in the control group.
- Describes the comparison of posttest dysmenorrhea scores between the experimental and the control group.

Section IV: (Table VII)

- Describes the association between the posttest mean score of the adolescent girls with dysmenorrhea with their selected demographic variables.

SECTION – I

Table 1:

Frequency and percentage distribution of the adolescent girls with dysmenorrhea based on the demographic variables.

N = 60

Demographic Variables	Experimental Group (n=30)		Control Group (n=30)		Total (N=60)	
	f	%	f	%	f	%
Age (in years):						
• 13-15 years	27	90	27	90	54	90
• 16-17 years	3	10	3	10	6	10
• 18 years	0	0	0	0	0	0
Age at Menarche:						
• 10-12 years	8	26.7	10	33.3	18	30
• 13-14 years	21	70	19	63.3	40	66.65
• Above 14 years	1	3.3	1	3.3	2	3.3
Duration of menstrual cycle:						
• 3 days	5	16.7	9	30	14	23.35
• 4 days	7	23.3	5	16.7	12	20
• 5 days	11	36.7	10	33.3	21	35
• Above 5 days	7	23.3	6	20	13	21.65
Frequency of menstruation:						
• Every 28 days	21	70	19	63.3	40	66.65
• Every 30 days	9	30	11	36.7	20	33.35

Demographic Variables	Experimental Group (n=30)		Control Group (n=30)		Total (N=60)	
	f	%	f	%	f	%
Family history of dysmenorrhea:						
• Yes	13	43.3	12	40	25	41.65
• No	17	56.7	18	60	35	58.35
Dietary pattern:						
• Non-vegetarian	4	13.3	3	10	7	11.65
• Vegetarian	26	86.7	27	90	53	88.35

Table I shows the demographic data of adolescent girls with dysmenorrhea. The total numbers of samples were 60 (30 in the experimental group and 30 in the control group).

Regarding age 27(90%) girls with dysmenorrhea belongs to the age group of 13-15 years in the experimental group and 27(90%) belongs to the same age group in the control group.

21(70%) of girls in the experimental group and 19(63.3%) of girls in the control group had attained menarche at 13-14 years.

5(16.7%) of girls in the experimental group and 9(30%) of girls in the control group had 3 days of menstrual cycle.

Almost equal number of girls in each group 21(70%) in the experimental group and 19(63.3%) in the control group had 28 days regular cycle.

Almost equal number of girls in each group 13(43.3%) in the experimental group and 12(40%) in the control group were having family history of dysmenorhea.

Almost equal number of girls in each group 26(86.7%) in the experimental group and 27(90%) in the control group were vegetarian.

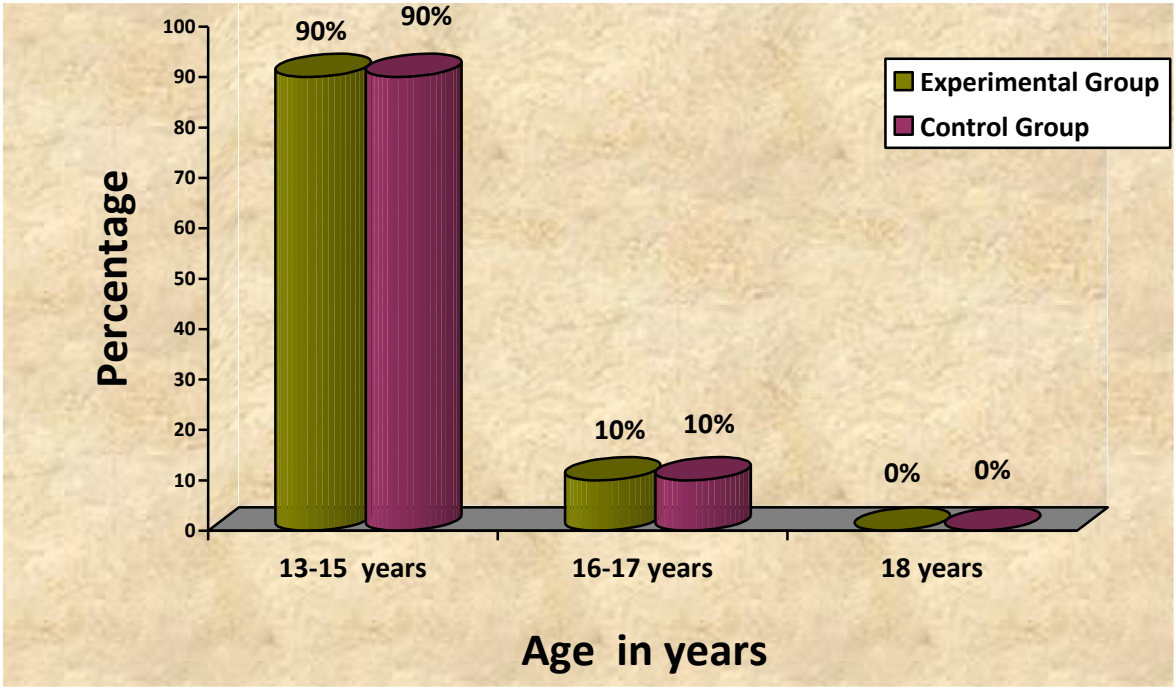


Fig. No 3: Frequency distribution of adolescent girls in both the groups according to their age

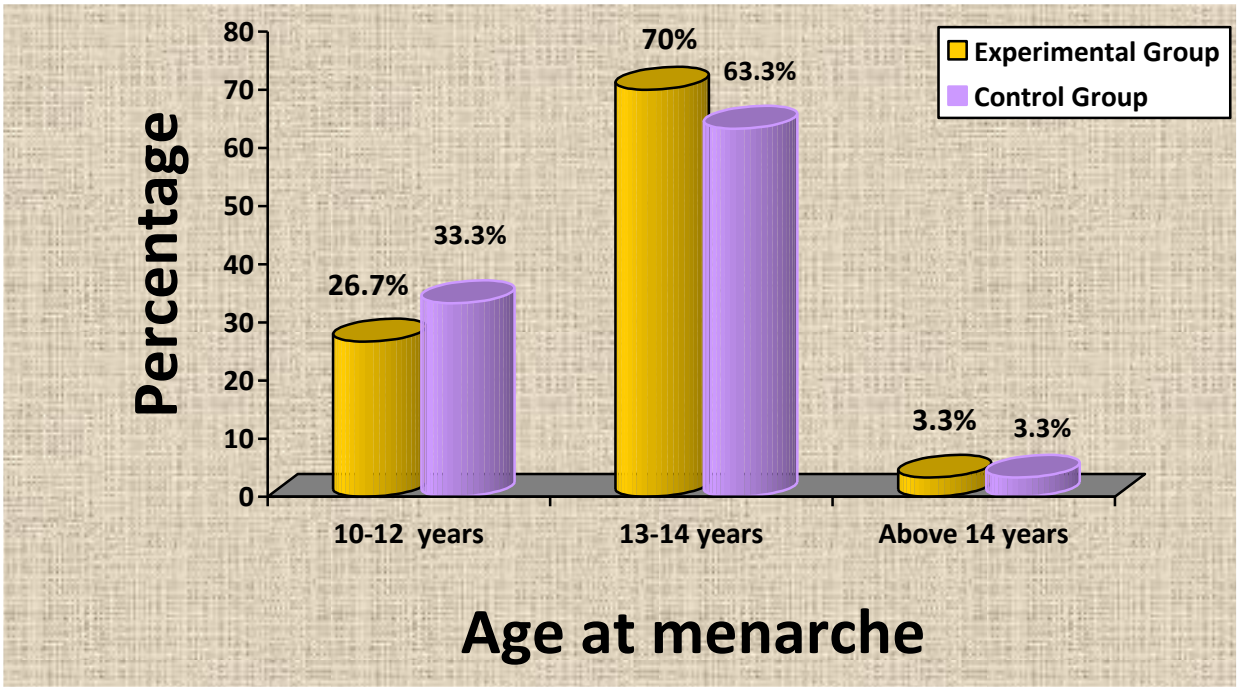


Fig. No 4: Frequency distribution of adolescent girls in both the groups according to their Age at menarche

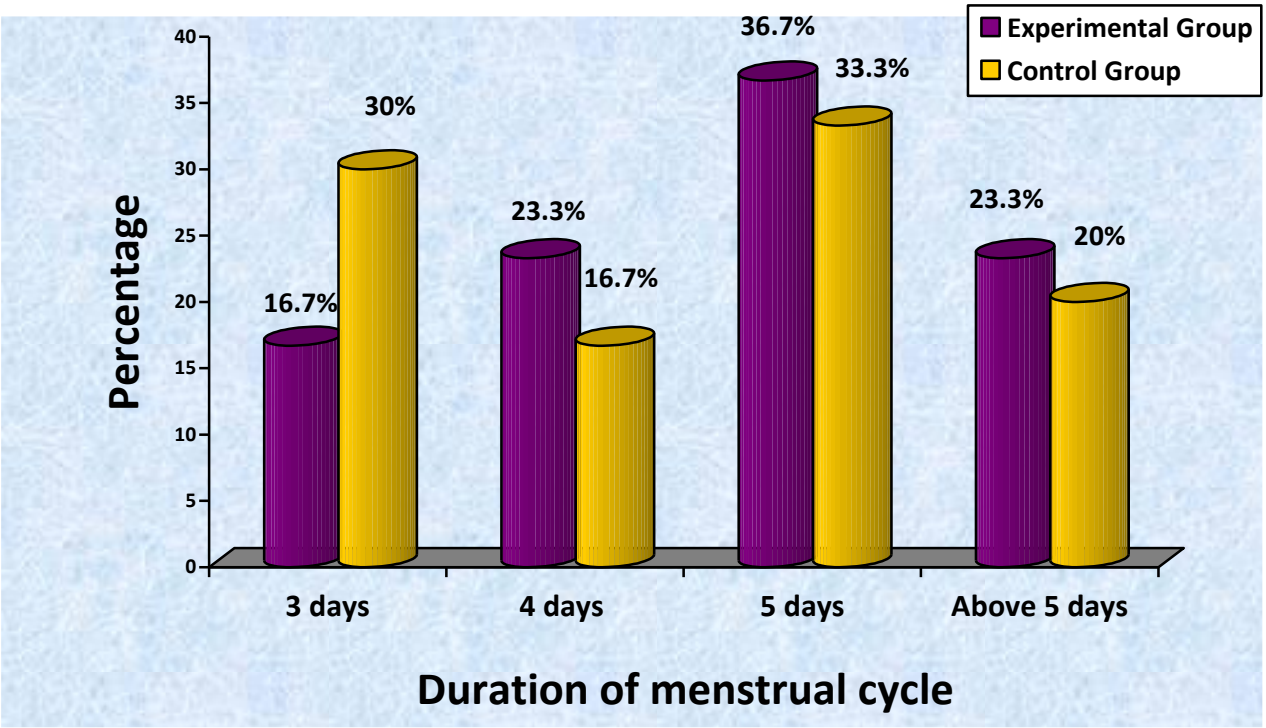


Fig.No 5: Frequency distribution of adolescent girls in both the groups according to their Duration of menstrual cycle

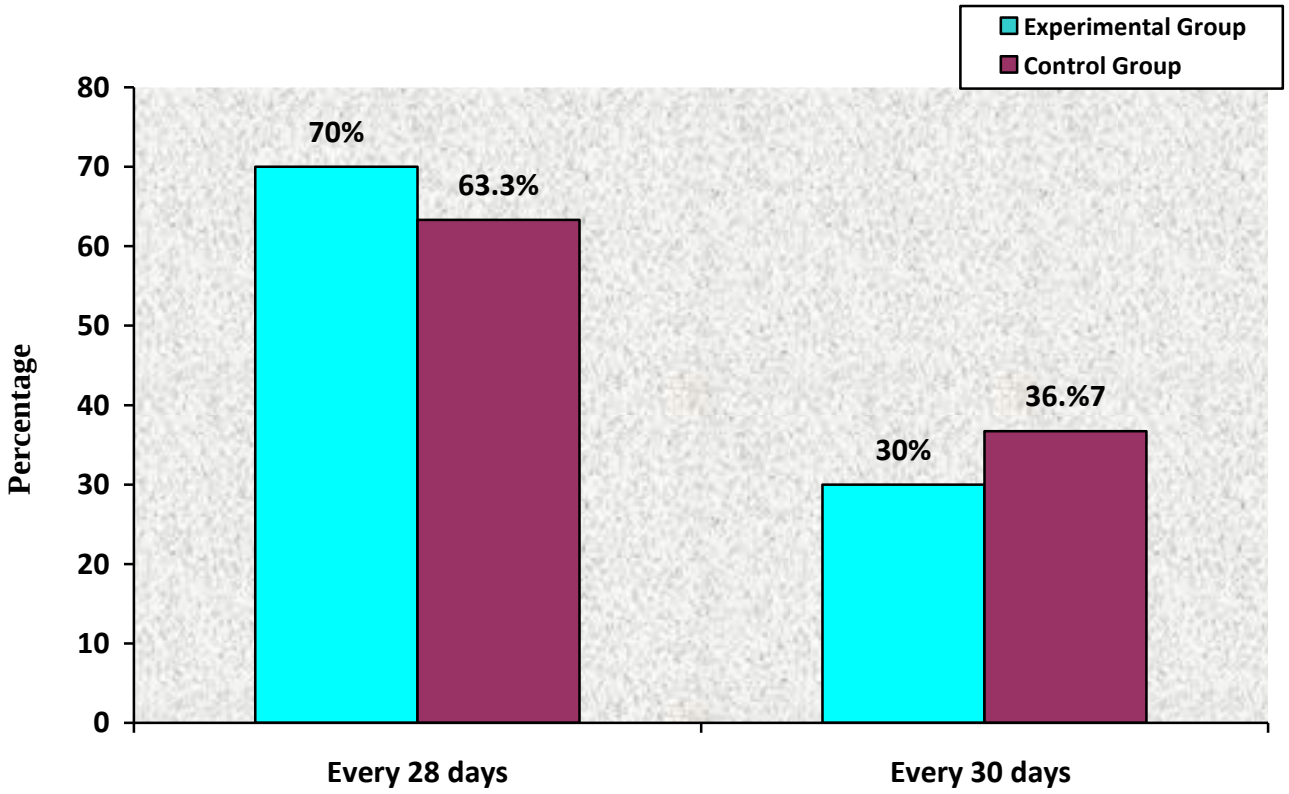


Fig.No 6: Frequency distribution of adolescent girls in both the groups according to their frequency of menstruation

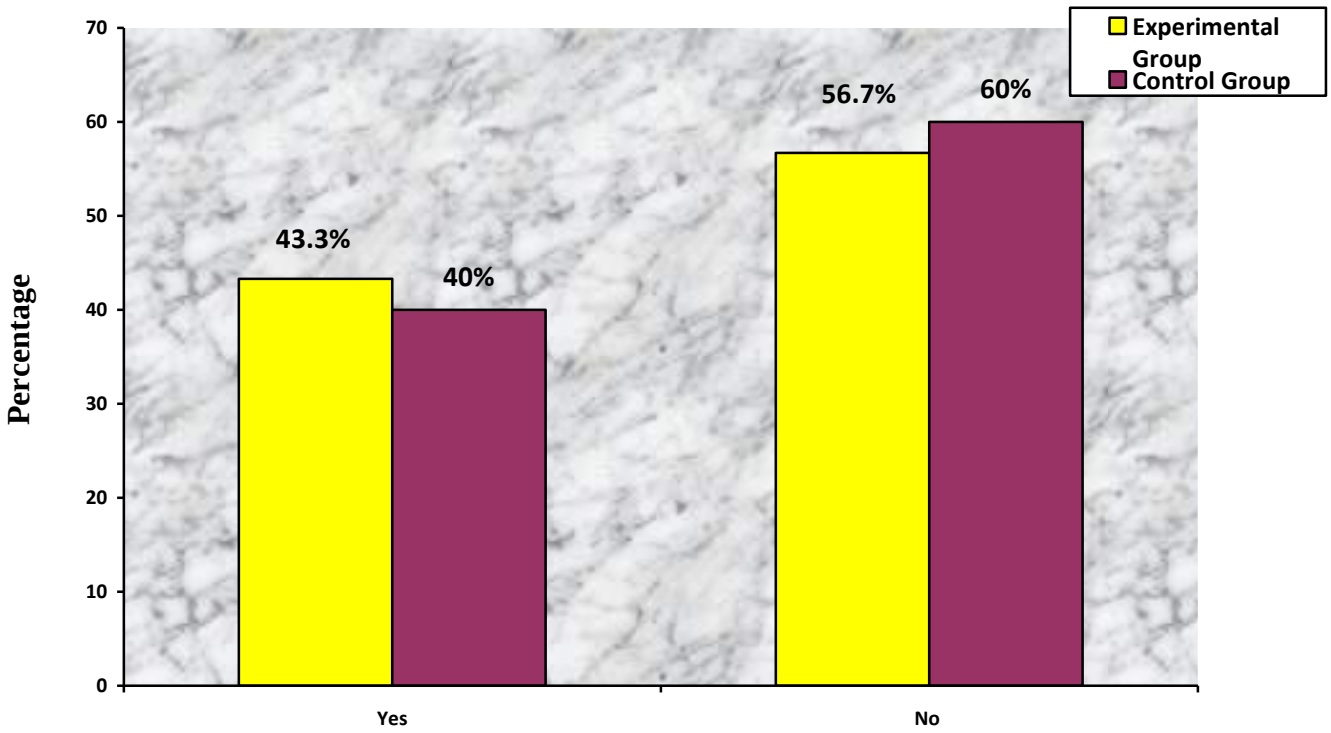


Fig.No 7: Frequency distribution of adolescent girls in both the groups according to their family history of dysmenorrhea

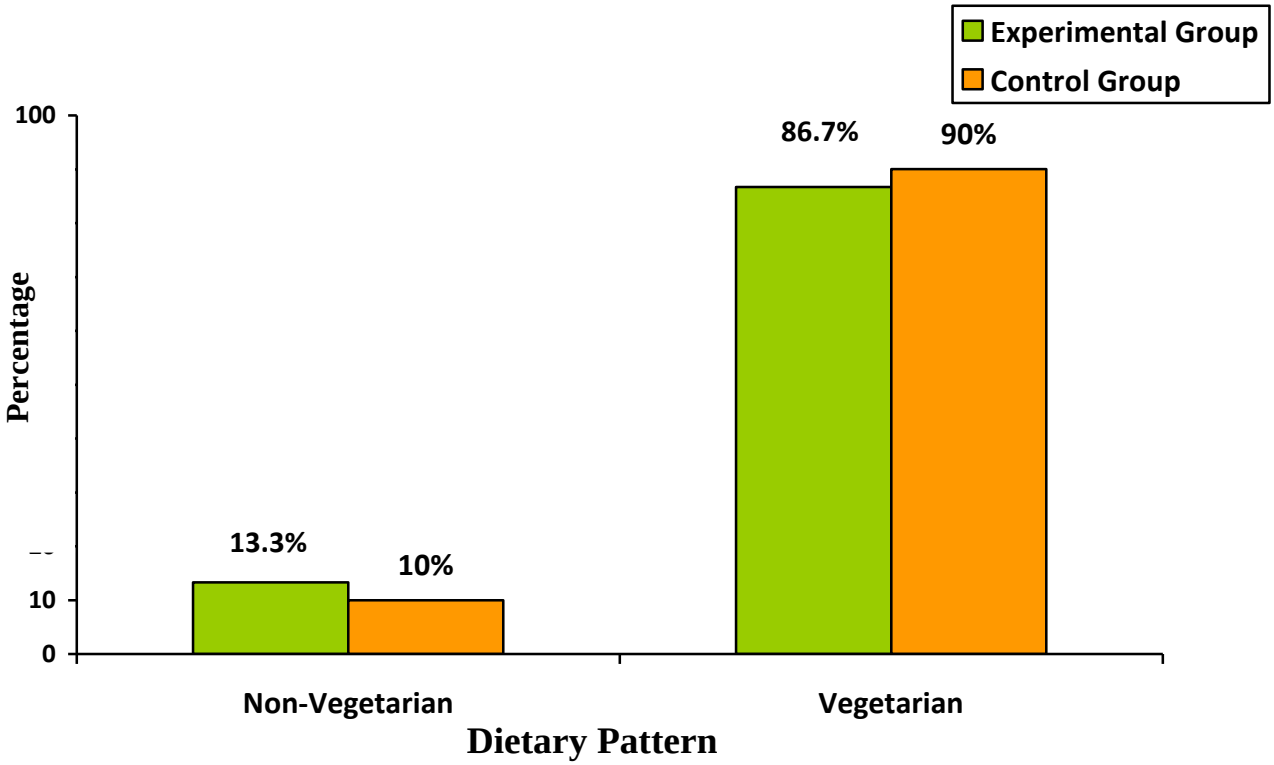


Fig.No 8: Frequency distribution of adolescent girls in both the groups according to their dietary pattern

SECTION – II

Table 2:

Distribution of adolescent girls with dysmenorrhea according to the level of pretest and posttest pain scores in the experimental group.

Level of Pain	Experimental Group			
	Pre Test		Post Test	
	f	%	f	%
No Pain	-	-	-	-
Mild	-	-	9	30
Moderate	8	26.7	21	70
Severe	12	40	-	-
Unbearable Pain	10	33.3	-	-

Table 2 shows that in the pretest experimental group 8(26.7%) of girls had moderate pain, 12 (40%) of girls had severe pain & 10 (33.3%) of girls had unbearable pain. After the Jacobson's Relaxation Technique 9(30%) of girls had mild pain & 21(70%) of girls had moderate pain.

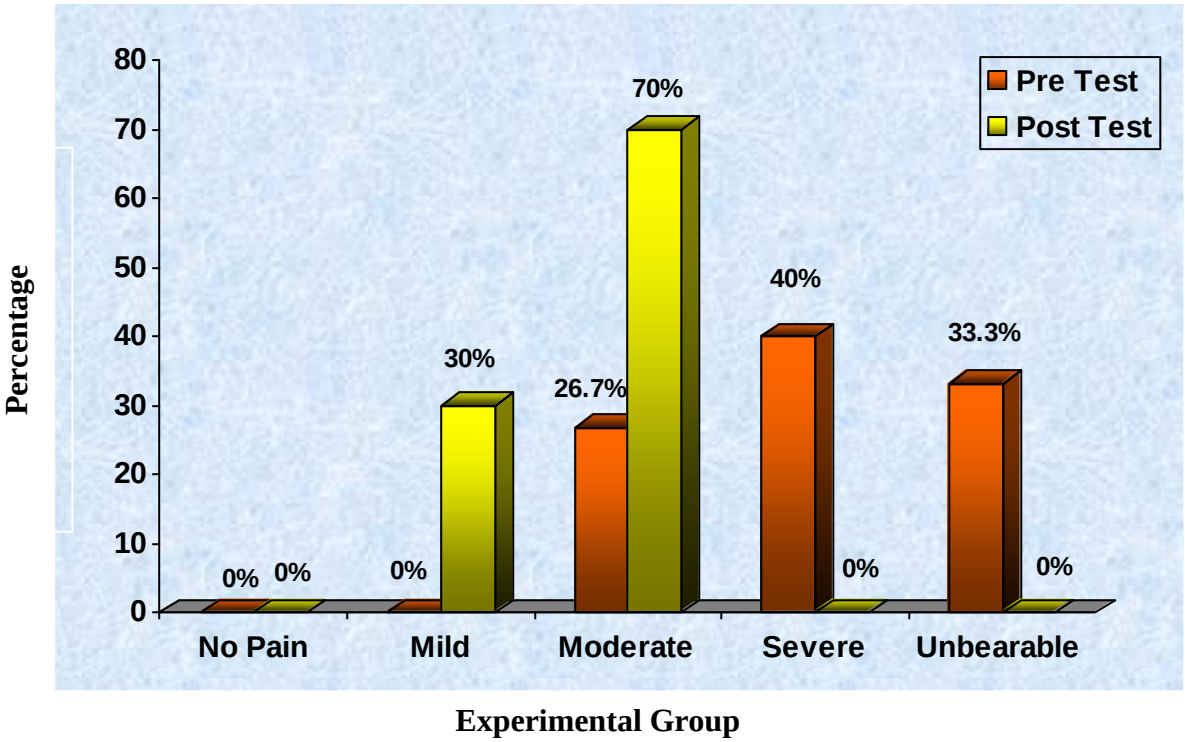


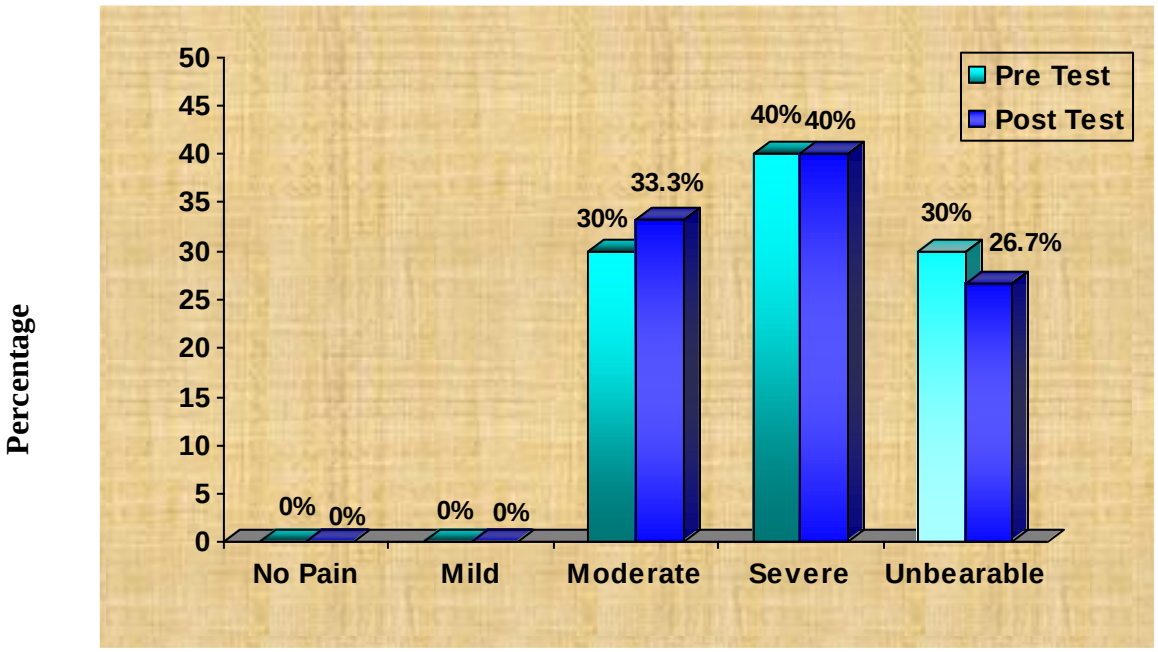
Fig.No 9: Frequency and percentage distribution of pretest and post test level of dysmenorrhea score in the experimental group.

Table 3:

Distribution of adolescent girls with dysmenorrhea according to the level of pretest and posttest pain scores in the control group.

Level of Pain	Control Group			
	Pre Test		Post Test	
	f	%	f	%
No Pain	-	-	-	-
Mild	-	-	-	-
Moderate	9	30	10	33.3
Severe	12	40	12	40
Unbearable Pain	9	30	8	26.7

Table 3 shows that in the pretest in the control group 9(30%) of girls had moderate pain, 12(40%) of girls had severe pain and 9(30%) of girls had unbearable pain. In the post test 10(33.3%) of girls had moderate pain, 12(40%) of girls had severe pain and 8(26.7%) of girls had unbearable pain.



Control Group

Fig. No. 10: Frequency and percentage distribution of pretest and posttest level of dysmenorrhea score in the control group.

SECTION – III

Effectiveness of Jacobson's Relaxation Technique on dysmenorrhea

Table 4:

Comparison of mean pretest and posttest dysmenorrhea score of adolescents girls in the experimental group.

Experimental Group	Mean	MD	SD	't' value	p-value
Pre Test	7.8	3.47	1.54	33.23	P<0.001***
Post Test	4.33	3.47	1.12		

*** Significant at (p<0.001) level.

To compare the mean pre test and post test dysmenorrhea scores of adolescent girls, the null hypothesis was stated as follows.

H_{01}:

The mean post test dysmenorrhea score of adolescent girls in the experimental group who had Jacobson's Relaxation Technique will not be significantly lower than their pre test level. The hypothesis was tested using paired t-test.

Table 4 portrays that the mean post test dysmenorrhea score 4.33 was lower than the mean pre test dysmenorrhea scores 7.8. The obtained 't' value 33.23 was statistically highly significant at 0.001 level. This illustrates that the difference was a true difference and has not occurred by change. So the researcher rejects the null hypothesis and accept the research hypothesis.

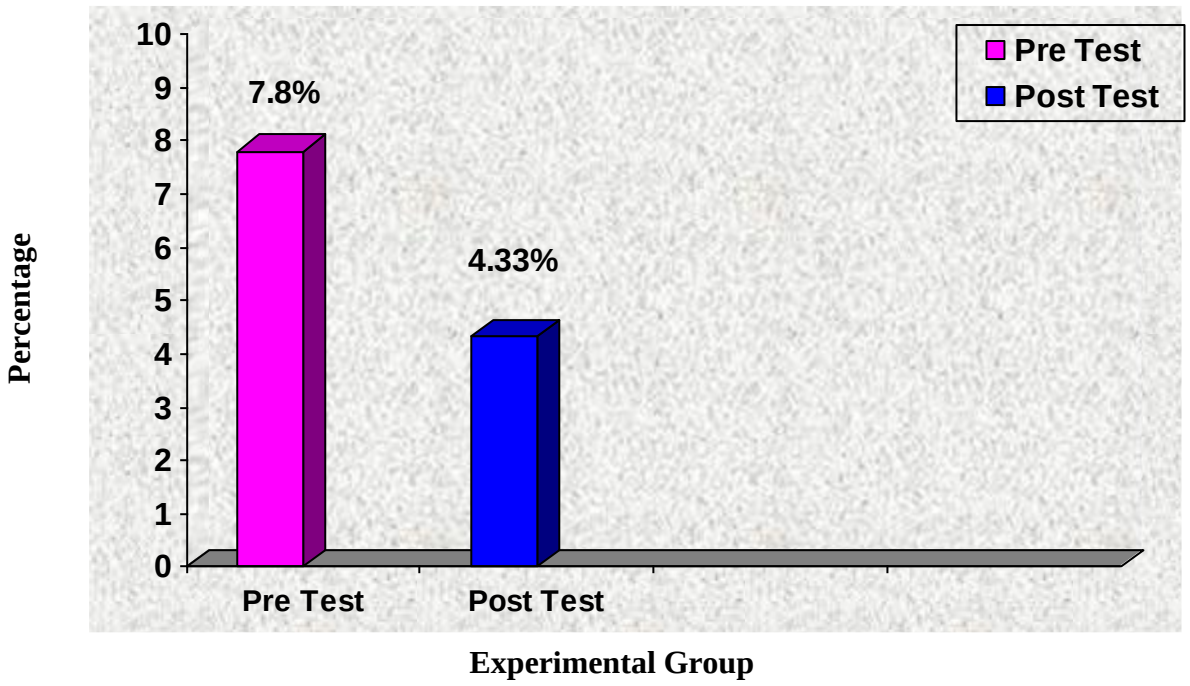


Fig. No 11: Comparison of mean pretest and posttest dysmenorrhea of adolescent girls in the experimental group

Table 5:

Comparison of mean pretest and posttest dysmenorrhea score of adolescents girls in the control group.

Control Group	Mean	MD	SD	't' value	p-value
Pre Test	7.63	0.13	1.47	1.68	0.103
Post Test	7.5	0.13	1.43		

Not significant at (P<0.05) level.

To compare the mean pre test and post test dysmenorrhea scores in the control group, the null hypothesis was stated as follow us:

There will be no significant difference between the pretest and post test dysmenorrhea scores of the control group at 0.05 level of significance.

The hypothesis was tested using paired 't' test method.

Table 5 portrays that the mean post test dysmenorrhea 7.5 was not much greather than the mean pretest dysmenorrhea score 7.63. The obtained 't' value 1.68 was not significant difference in the mean.

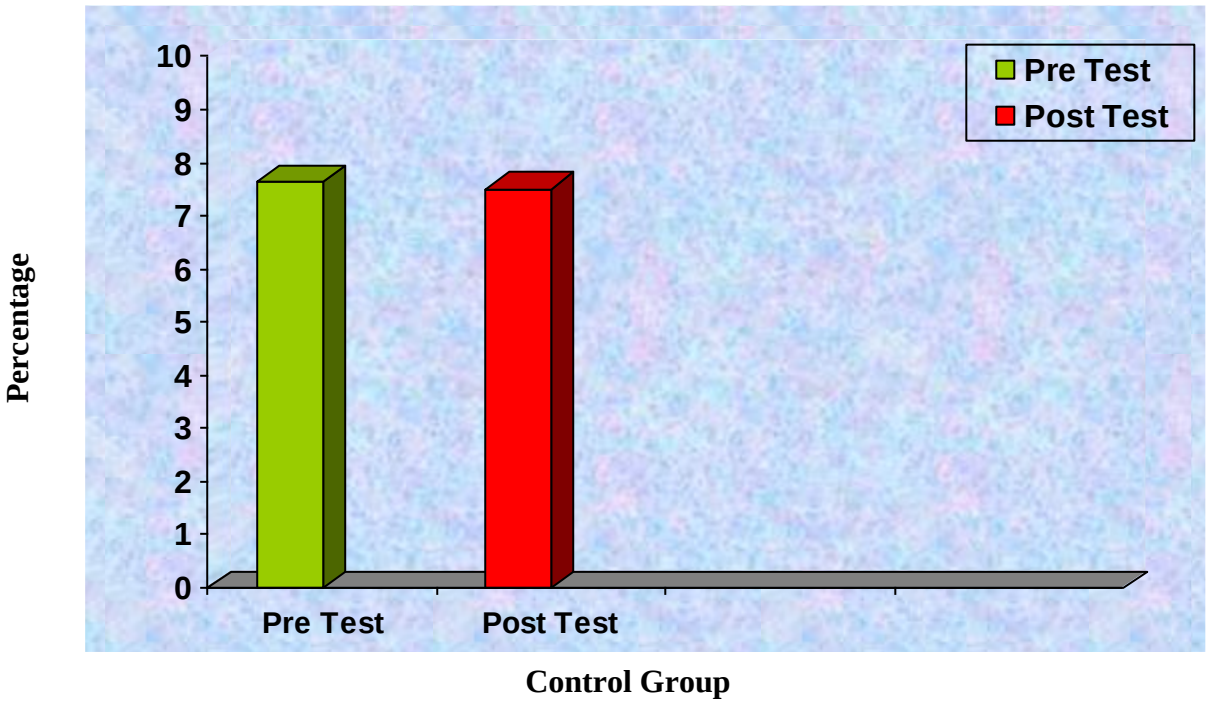


Fig. No 12: Comparison of mean pretest and posttest dysmenorrhea of adolescent girls in the control group.

Table 6:

Comparison of mean post test dysmenorrhea scores between the experimental group and the control group.

Groups	Mean	MD	SD	't' value	p-value
Experimental Group	4.33	3.17	1.12	9.52	P<0.001
Control Group	7.5		1.43		

***Significant at (P<0.001) level.

The null hypothesis was stated as follows:

H_{02}:

The mean post test level of the experimental group will not be significantly lower than the mean post test score of the control group.

The hypothesis was tested using independent 't' test.

Table 6 portrays that the mean post test dysmenorrhea score of the experimental group 4.33 was lower than the mean post test score of 7.5 of the control group. The obtained 't' value 9.52 was statistically highly significant at 0.001 level. This illustrates that the mean difference of 3.17 was a true difference and has not occurred by chance. So the researcher rejects the null hypothesis and accepts the research hypothesis.

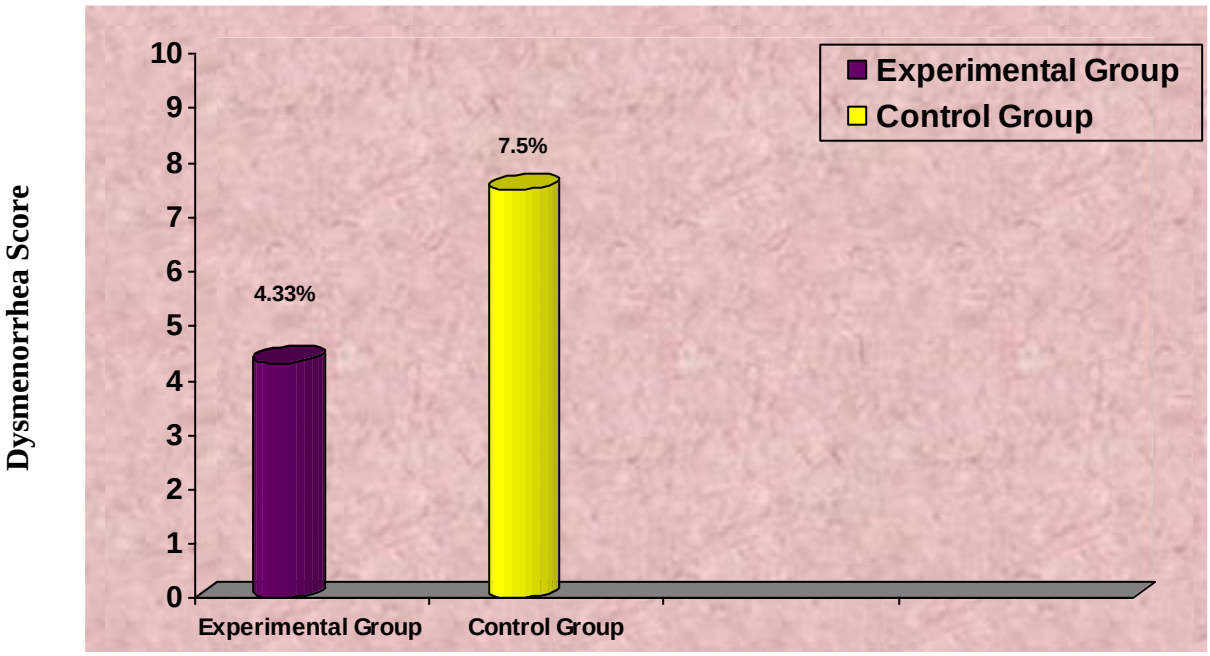


Fig. No 13: Comparison of mean post test scores of dysmenorrhea between the experimental group and the control group

SECTION – IV

Table 7:

Association between the selected demographic variables and post test score of adolescent girls with dysmenorrhea in the experimental group.

N = 30

Demographic Variables	Above Mean		Below Mean		$\chi 2$	p-value
	f	%	f	%		
Age (in years):						
• 13-15 years	13	43.3	14	46.7	2.55	0.110#
• 16-17 years	0	0	3	10	(df=1)	
• 18 years	0	0	0	0		
Age at Menarche:						
• 10-12 years	3	10	5	16.7	1.42	0.492#
• 13-14 years	9	30	12	40	(df=2)	
• Above 14 years	1	3.3	0	0		
Duration of menstrual cycle:						
• 3 days	3	10	2	6.7		
• 4 days	3	10	4	13.3	0.78	0.853#
• 5 days	4	13.3	7	23.3	(df=3)	
• Above 5 days	3	10	4	13.3		
Frequency of menstruation:						
• Every 28 days	12	40	9	30	5.43	0.020#
• Every 30 days	1	3.3	8	26.7	(df=1)	

Demographic Variables	Above Mean		Below Mean		$\chi 2$	p-value
	f	%	f	%		
Family history of dysmenorrhea:						
• Yes	8	26.7	5	16.7	3.09	0.074#
• No	5	16.7	12	40	(df=1)	
Dietary Pattern:						
• Non Vegetarian	2	6.7	2	6.7	0.08	0.773#
• Vegetarian	11	36.7	15	50	(df=1)	

 # Not significant at 0.05 level.

To find out the association between the post test dysmenorrhea score and demographic variables of the adolescent girls such as age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern the null hypothesis was stated as follows:

H_{03}:

There will not be any significant association between the dysmenorrhea score and selected demographic variables.

Table 7 from the table 7 it is inferred that there was no significant association between aggressive behavior and demographic variables. The chi-square values of the demographic variables were not significant at 0.01 levels. This shows that there is no association between the dysmenorrhea scores selected demographic variables like age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern. The above findings fail to support the research hypothesis and support the null hypothesis.

CHAPTER - V

DISCUSSION

The aim of the study was to assess the effectiveness of Jacobson's Relaxation Technique on dysmenorrhea among the school going adolescent girls at selected school in Madurai. The study findings are discussed in this chapter with reference to the objectives stated in chapter I.

Distribution of samples with regard to demographic variables

The samples of the study were adolescent girls. Majority 27 girls (90%) with dysmenorrhea belonged to the age group of 13- 15 years in the experimental group and 27 girls (90%) belong to the same age group in the control group. 21(70%) girls in the experimental group and 19(63.3%) girls in the control group attained menarche at 13- 14 years. 5(16.7%) girls in the experimental group and 9(30%) girls in the control group had 3 days of menstrual cycle. Almost equal number of girls in each group 21(70%) in the experimental group and 19(63.3%) in the control group had 28 days of regular cycle. 13(43.3%) girls in the experimental group 12(40%) girls in the control group were having family history of dysmenorrhea. Almost equal number of girls in each group 26(86.7%) in the experimental group and 27(90%) in the control group were vegetarian.

The prevalence of dysmenorrhea is increased in the 13-15 years. Dysmenorrhea is treatable by exercises as a Complementary and Alternative Medicine. So the nurses working in the field of gynaecology and in health care settings need to address these therapies.

The first objective of the study was to assess pre – test and post – test level of dysmenorrhea among school going adolescent girls in the experimental group before and after jacobson's relaxation technique:

All the adolescent girls studying in IXth standard in two sections were screened for dysmenorrhea that is (N=120). The sample size of 60 adolescent girls with moderate to severe dysmenorrhea were selected 30 in experimental group and 30 in control group. The subjects were randomly assigned to the experimental and the control group using convenient sampling technique. Researcher selected only those students who fulfilled the inclusion criteria.

In the pre-test of all the subjects in the experimental group 26.7% of girls had experienced moderate pain, 40% of girls had experienced severe pain , 33.3% of girls had unbearable pain, whereas in the post-test 30% had experienced mild level of pain and 70% of girls experienced moderate level of pain.

Suresh K. Kumbhar,(2011) conducted a cross sectional study among 183 adolescent girls (14-19 years) at kadapa. Out of 183 adolescent girls 119 (65%) are dysmennorhic, 68.4% and 61.2% are from the urban and rural areas respectively. 81 adolescent girls with family history of dysmenorrhea .60 (74.1 %) adolescent girls are dysmennorhic. Sickness absenteeism is seen among 47.9% dysmennorhic girls. Quality of life is significantly reduced among dysmennorhic girls. Almost 73.1% of rural girls rely on self help technique to manage the dysmenorrhea as compare to urban girls (55.2 %).

The second objective was to assess the pre-test and post-test level of dysmenorrhea among school going adolescent girls in the control group:

In the control group 30% of girls had moderate pain, 40% of girls had severe pain and 30% of girls had unbearable pain whereas in the post–test 33.3% of girls had moderate pain, 40% of girls had severe pain and 26.7% of girls had unbearable pain.

The study results demonstrated that the adolescent girls in the experimental group experienced a marked reduction in dysmenorrhea than their counterparts in the control group ('t' value 33.23; 'p' $p<0.001$).

The third objective was to evaluate the effectiveness of Jacobson's Relaxation Technique on dysmenorrhea among school going adolescent girls:

In order to evaluate the effectiveness of Jacobson's Relaxation Technique, pre-test and post-test scores of the experimental group were compared.

Table 4 depicts that mean post-test dysmenorrhea score (4.33) was lesser than the mean pre-test dysmenorrhea score (7.8). The obtained previous 't' value 33.23 was statistically highly significant at($p< 0.001$) level.

Table 5 depicts that mean post test dysmenorrhea score (7.5) was lesser than the mean pre-test dysmenorrhea score (7.63) in the control group. The obtained previous 't' value 1.68 not significant at ($p<0.05$) level.

Nurses need to be informed about various complementary and alternative medicine modalities that client might be using because of the increased interest in CAM as well as less restrictive regulation of many products. Nurses have responsibility to educate clients about CAM which provides safe, low cost and effective and with less side effects.

Halder, (2012) conducted a study to examine the comparative efficacy of progressive muscle relaxation and the oral intake of ginger on symptoms of dysmenorrhea among nursing students of Pune, Maharashtra. The students (n=75) were divided into two groups, one experimental and one control group. Ginger powder 1 gm was administered twice a day with warm water after a meal to the experimental group during the first three days of their menstruation. A 5 point likert scale was used to assess the severity of selected symptoms of dysmenorrhea. It was concluded that ginger powder has efficacy superior to progressive muscle relaxation.

Jutta Kran, (2012) conducted a experimental study in Germany among 55 adolescent girls(14-19 years) with primary dysmenorrhea. They were randomized by 30 in experimental group and 25 in control group using numerical pain scale. Experimental group was practiced Jacobson's relaxation technique for 30 – 40 minutes. No intervention for control group. Jacobson's relaxation technique was effective in reducing the menstrual pain during the primary dysmenorrhea.

The fourth objective was to determine the association between the post-test level of dysmenorrhea with the selected demographic variables such as age, age at menarche, duration of menstrual cycle, frequency of menstruation, family history of dysmenorrhea and dietary pattern:

The study findings revealed that there was no statistically significant association found between the level of dysmenorrhea score and selected demographic variables among students in the adolescent age group.

Klinga ,(2013) conducted a study of jacobson's relaxation exercise on primary dysmenorrhea among high school girls. This study was a randomized clinical trial of 100 high school girls students in Hong Kong that suffering from severe

dysmenorrhea. Students were separated in two “exercise” and “non exercise” groups. The descriptive statistics and repeated measure design were used for analyzing the statistical information. The result showed that the exercise group ($p<0.01$). The Jacabson’s relaxation exercise can decrease the duration and severity of dysmenorrhea.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

This chapter contains the summary of the study and conclusion drawn. It clarifies the limitations of the study and the implications. The recommendations are given for different areas like nursing education, administration and health, nursing practice and nursing research.

SUMMARY

This study was undertaken to determine the effectiveness of jacobson's relaxation technique on dysmenorrhea among adolescent girls in selected school at Madurai.

The conceptual framework of this study was based upon Sister CALLISTA ROY'S Adaptation model. Non- equivalent pre-test post- test control group design was used for the study. Independent variable was jacobson's relaxation technique. Dependent variable was dysmenorrhea.

The tool used in this study was Visual Analogue Scale which was tested by inter rater method and found to be r=0.8. The content validity was obtained from five experts.

CSI. Girls Higher Secondary School which is situated in urban area of Madurai were selected. The convenient sampling was used to recruit sample for the experimental and control group respectively.

After obtaining permission from the Headmistress of the school, the researcher introduced herself to the participants. The research purpose and nature was explained to the samples and their verbal consent was obtained. Pretest was conducted on the day of menstruation. Then Jacobson relaxation technique was practiced twice a day

after one hour on the same day of menstruation the posttest was conducted. The data was collected organized and analyzed using descriptive and inferential statistics.

MAJOR FINDING OF THE STUDY

Majority 27 girls 90% with dysmenorrhea belonged to the age group of 13-15 years in the experimental group and 27 girls 90% belong to the same age group in the control group. 21(70%) of girls in the experimental group and 19(63.3%) of girls in the control group had attained menarche at 13-14 years. 5(16.7%) of girls in the experimental group and 9(30%) of girls in the control group had 3 days of menstrual cycle. Same number of girls in each group 21(70%) in the experimental group and 19(63.3%) in the control group had every 28 days of regular cycle. Almost equal number of girls in each group 13(43.3%) in the experimental group and 12(40%) in the control group were having family history of dysmenorrhea. Almost equal number of girls in each group 26(86.7%) in the experimental group and 27(90%) in the control group were vegetarian.

According to the level of pre-test pain score, 8(26.7%) of girls had moderate pain, 12(40%) of girls had severe pain and 10(33.3%) of girls had unbearable pain. After Jacobson's relaxation technique 9(30%) of girls had mild pain and 21(70%) of girls had moderate pain in the experimental group.

In the control group pre-test pain score 9(30%) of girls had moderate pain, 12(40%) of girls had severe pain and 9(30%) of girls had unbearable pain. In post test 10(33.3%) of girls had moderate pain, 12(40%) of girls had severe pain and 8(26.7%) of girls had unbearable pain.

The Jacobson's relaxation technique was effective in reducing dysmenorrhea as evidenced by statistically significant findings in the following:

- Pre-test Vs post-test dysmenorrhea scores of the experimental group [‘t’ value-33.23; MD=3.47; p< 0.001]
- Pre-test Vs post-test dysmenorrhea scores of the control group [‘t’ value-1.68; MD=0.13; p value 0.103]
- The comparison of mean post-test score in the experimental group Vs in the control group [‘t’ value - 9.52; MD=3.17; p<0.001]

There was no significant association between the dysmenorrhea score and selected demographic variables.

CONCLUSION

- Most of the adolescent girls suffer from dysmenorrhea.
- Jacobson’s relaxation technique was effective in reducing the level of dysmenorrhea among adolescent girls.
- The findings indicate that Jacobson’s relaxation technique can be administered to the school going adolescent girls in reducing the level of dysmenorrhea score since it is affordable, comfortable without any side effects.

IMPLICATIONS

- The nurse can apply this intervention across various health care setting especially in the community areas, since dysmenorrhea is very common among school going adolescent girls but it is undertreated, under diagnosed and poorly managed.
- When poorly managed it has got lot of misconceptions prevailing in the society about dysmenorrhea. This condition has to be addressed in community that dysmenorrhea can be simply treated at affordable cost by using natural Jacobson’s relaxation technique.

- The study findings revealed the importance of nurse's role in reducing dysmenorrhea score among the school going adolescent girls using cost-effective, safe, non-pharmacological treatment like alternative and complementary therapy that is Jacobson's relaxation technique.
- Study findings signify the importance of formulation of guidelines and implementation of Jacobson's relaxation technique, especially for adolescent girls who suffer with dysmenorrhea.
- Nurses, specializing in Obstetrical and Gynecological Nursing need to be empowered in administering Complementary and Alternative Medicine like Jacobson's relaxation technique.
- The findings show that this intervention can be regularly practiced for girls with dysmenorrhea by all health care professionals.

Implications for Nursing Education

- As a part of reproductive assessment, nursing students need to be taught and trained in identify the symptoms of dysmenorrhea in the hospital and community settings.
- Post-graduate nursing students specializing in Obstetrics and Gynecology should be trained in administering Complementary and Alternative Medicine.
- Nursing personnel working in gynecological wards and in community settings should be given in service education regarding women with dysmenorrhea and benefits of Jacobson's relaxation technique.

Implications for nursing research

- The findings of the present study have added knowledge to the already existing literature and the implications for the nursing research are given in

the form of recommendation. This study can be a baseline for future studies to build upon and motivate other researchers to conduct further studies.

Implications for nursing administration

- The nursing administration especially homes, gynecological wards, educational institutions, primary health centers and sub centers can organize continuing nursing education in Complementary and Alternative Medicine.
- The administrators can encourage the nurses to use different safe, cost effective, complementary therapies in reducing dysmenorrhea among adolescent girls.
- A considerable amount in the budget can be allocated for organizing continuing nursing education program and in preparing complementary therapies especially for common gynecological conditions.
- Administrators can motivate the students to do further research studies on Jacobson's relaxation technique.
- A staff and village health nurse can be trained especially to administer Complementary and Alternative Medicine.

LIMITATIONS

- The study was limited for 6 weeks.
- The study was done on a sample size of 30 hence generalization is possible only for the selected participants.
- Within the limited time only one post test been performed on the 1st day of menstruation.

RECOMMENDATIONS FRO FURTHER STUDY

On the basis of the present study, the following recommendations have been made for further study,

- Since there is a less literature on dysmenorrhea incidence and risk factors, a descriptive study can be undertaken to study the prevalence of dysmenorrhea.
- It can be conducted on large sample size.
- A qualitative approach can be applied in studying the effects of Jacobson's relaxation technique on dysmenorrhea and the negative effects.
- A comparative study can be done among married Vs unmarried women to know the effectiveness of Jacobson's relaxation technique.
- A qualitative approach study can be applied in studying the effects of dysmenorrhea and quality of life.

SUMMARY

This chapter dealt with the summary, major findings of the study, discussion, conclusion, implication to the field, limitation of the study and recommendations for further studies.

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APPENDIX – I

ETHICAL COMMITTEE FORM

SACRED HEART NURSING COLLEGE

ULTRA TRUST

4 / 235, COLLEGE ROAD,
THASILDAR NAGAR,
MADURAI - 625 020.
TAMILNADU, INDIA.
PHONE : 0452 - 2534593
Email : ultratrust@rediffmail.com

Ref : UT : SHNC: Ph.D(N) : 2017

Date : 17.01.2017

ETHICAL COMMITTEE

The following members of the ethics committee were present at the meeting held on 12.01.2017 at 2.15 pm in Sacred Heart Nursing College.

CHAIR PERSON

1. **Dr. SABHESAN, M.B.B.S. DPM, MNAMS, Ph.D.**
   Head, Department of Psychiatry
   CSI Mission Hospital, Madurai.

DEPUTY CHAIRMAN

2. **Dr. NALINI JEYAVANTH SANTHA, M.Sc., (N) Ph.D.**
   Principal, Sacred Heart Nursing College, Madurai – 625 020.

MEMBER SECRETARY

3. **Dr. DEVAKIRUBAI, M.Sc., (N) Ph.D.**
   Head, Department of MEDICAL SURGICAL Nursing,
   Sacred Heart Nursing College, Madurai–625 020.

MEMBERS

4. **Dr. VIJAYALAKSHMI, M.D.S.,**
   Principal,
   Best Dental College, Ultra Trust.

5. **Dr. RAJASEKARAN, M.B.B.S, D.F.M. D.Diab**
   Pathologist
   Best Dental Science College,
   Ultra Trust, Madurai.

6. **Dr.R.VARADHARAJAN, M.Sc., MPHIL.,M.ED.,Ph.D.,**
   Former District Educational Officer,
   Madurai.

7. **Mr. CHINNAKARUPPAN M.A., B.L., DCFSC**
   Advocate and Notary Public,
   14, Asari Street, Thallakulam, Madurai – 2.

SACRED HEART NURSING COLLEGE

ULTRA TRUST

4 / 235, COLLEGE ROAD,
THASILDAR NAGAR,
MADURAI - 625 020.
TAMILNADU, INDIA.
PHONE : 0452 - 2534593
Email : ultratrust@rediffmail.com

Ref : UT : SHNC: Ph.D(N) : 2017 Date : 17.01.2017

8. Dr.S.RAVIKUMAR, MBBS, DNB(Family Medicine).,F.Diab.,
Tutor, Department of Medicine,
Best Dental Science College.

RESOLUTION – 3/2017

It is resolved to accept **Ms. S. AKILANDESWARI** to conduct "A study to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhoea among the adolescent girls in selected schools of Madurai".

The Institutional Ethics Committee expects to be informed about the progress of the study, any changes in the protocol, patient information and asks to be provided a copy of the final report.

Yours Sincerely

17.1.17
Chair Person
Ethics Committee

Member Secretary
Ethics Committee

Dr.SABHESAN, M.B.B.S. DPM, MNAMS, Ph.D.

Dr. E.DEVAKIRUBAI M.Sc., (N) Ph.D

APPENDIX - II

COPY OF LETTER SEEKING PERMISSION TO CONDUCT THE STUDY IN SELECTED SETTINGS

PERMISSION LETTER TO CONDUCT RESEARCH

Dr.NALINI JEYAVANTH SANTHA M.Sc(N), Ph.D,
PRICIPAL,
SACRED HEART NURSING COLLEGE.

4/235, COLLEGE ROAD,
THASILDAR NAGAR,
MADURAI – 625020.
PHONE: 2534593

Ref.UT: SHNC: 2017

To,

The Headmistress

CSI Girls Higher Secondary School,

Madurai.

Respected Sir/ Madam,

Sub: Sacred Heart Nursing College, Madurai – project work of M.SC (Nursing) student –permission requested- Reg.

We wish to state that **Ms.AKILANDESWARI**, Final year M.SC (Nursing) student of our college has to conduct a research project, which is to be submitted to the Tamil Nadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of university requirements.

The topic of research project is "A study to assess the effectiveness of Jacobson's relaxation technique on dymenorrhea among adolescent girls in selected school at Madurai".

We therefore request you to kindly permit him to do the research work in your organization under your valuable guidance and suggestion.

Thanking you,

Yours faithfully,

Principal

SACRED HEART NURSING COLLEGE

Headmistress
C.S.I. Girls Hr. Sec. School,
Pasumalai, MADURAI.

APPENDIX - III

COPY OF LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY AND VALIDITY OF TOOL

From

Ms. Akilandeswari.S,

M.Sc(Nursing) II year,

Sacred Heart College of Nursing,

Madurai – 20.

To,

Respected Sir / Madam,

SUB: Requesting opinions and suggestion of experts for the content validity and validity of tool.

I am a post graduate student (Obstetrics and Gynecological Nursing) of Sacred Heart Nursing College. I have selected the below mentioned topic of the research project submitted to DR. M.G.R. Medical University, Chennai as a fulfillment of Master of Science in Nursing.

TITLE OF THE TOPIC:

"A study to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhea among the adolescent girls in selected schools at Madurai".

With regard to this may I kindly request you to validate my content and tool for its relevancy. I am enclosing the objectives of the study. I would be highly obliged and remain thankful if you could validate and send it as early as possible.

Thanking You.

Place: Your's faithfully,

Date:

(Ms.Akilandeswari).

APPENDIX - IV

LIST OF EXPERTS CONSULTED FOR THE CONTENT VALIDITY OF RESEARCH TOOLS

1) Dr.Nalini Jeyavanth Santha, M.Sc(N), Ph.D(N),
Principal,
Sacred Heart Nursing College,
Madurai.

2) Prof.Merlin M.sc(N)., Ph.D
Vice Principal
Obstetrics and gynaecological Nursing,
CSI college of Nursing
Pasumalai.

3) Prof.Grace Balammal M.Sc(N).,
Obstetrics and gynaecological Nursing,
CSI college of Nursing
Pasumalai.

4) Dr.Sujatha Ravi,M.B.B.S.,DGO.,
Obstetrics and Gynecologist,
Consultant OBG,
Divya Hospital, Madurai.

5) Dr.B.Ananthavalli,M.Sc.,M.A.,M.Phil.,Ph.D.,
Director and secretary,
The Valliammal Institution,
Maduari.

APPENDIX -V

COPY OF CONTENT VALIDITY CERTIFICATE

This is to certify that I, ———————— have gone through the tool submitted by Ms. Akilandeswari.S doing her research as a fulfillment of Master of Science in nursing under the Tamil Nadu Dr. MGR Medical University, Chennai.

The statement of the problem in her study is "A study to assess the effectiveness of Jacobson's relaxation technique on dysmenorrhea among the adolescent girls in selected schools at Madurai ".

I have gone through the tool for construct, content and criterion validity. I certify that this tool can be used for the above mentioned study.

Date: Signature of the expert

Place : **Designation and seal of the expert**

APPENDIX - VI

CONSENT FORM

All the details of this study were being explained to me. I am aware that the information collected from me will be used for the purpose of the study. I am also assured that there is no complication in doing Jacobson’s relaxation technique and that all the information collected will be highly confidential. Thereby I am willing to participate in this study on my own interest and wish.

Place: Participant's Signature

Date:

Researcher's Signature

APPENDIX – VII

பங்கேற்பவரின் ஒப்புதல் படிவம்

இந்த ஆராய்ச்சியைப் பற்றி எனக்கு முழு விவரம் அளிக்கப்பட்டுள்ளது. என்னை பற்றிய புள்ளி விவரங்கள் அனைத்தும் ஆராய்ச்சியின் பயன்பாட்டடிற்காக சேகரிக்கப்படும் என்பதை நான் நன்றாக அறிந்துள்ளேன். இந்த ஆராய்ச்சியில் பங்கு பெறுவதால் எந்த வித தீங்கும் ஏற்படாது என்பதும் மேலும் இதன் விபரங்கள் பிறர் அறியா வண்ணம் வைக்கப்படும் என்பதையும ் அறிந்துள்ளேன். மேலும் இந்த ஆராய்ச்சியில் பங்கேற்க முழு ஒப்புதல் அளிக்கிறேன்

இடம் பங்கேற்பவரின் கையொப்பம்

நாள் ஆராய்ச்சியாளரின் கையொப்பம்

APPENDIX – VIII

Training Certificate

THE VALLIAMMAL INSTITUTION (TVI)

2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009.

✆ 98942 49630; 98430 40226 email: ananthibetsy@rediffmail.com

Reg. No. PCC/52/Feb. 17/326 Date: 11/02/17

Certificate Course in Basic Counselling Skills and Jacobson's Relaxation Technique

This is to certify that .....S. AKILANDESWARI..... *has completed our* **CERTIFICATE COURSE IN BASIC COUNSELLING SKILLS AND JACOBSON'S RELAXATION TECHNIQUE** *(24hrs Part-time Education Programme designed and offered by experts) by effectively participating in theory & practical classes and successfully completing all the exercises. She has been placed in First Class*

THE VALLIAMMAL INSTITUTION (TVI) 2/18A Upstairs, B.B. Road 2nd St., Pankajam Colony , Madurai-625 009 Ph: 4210258

Prof. Dr. S. Jeyapragasam M.Sc.,M.A.,M.A.,Ph.D.,
Director
Rajarajan Institute of Science (RISE)

Dr. B. Ananthavalli M.Sc.,M.A.,M.Phil.,Ph.D.,
Director & Secretary
The Valliammal Institution (TVI)

APPENDIX - IX

Part – I

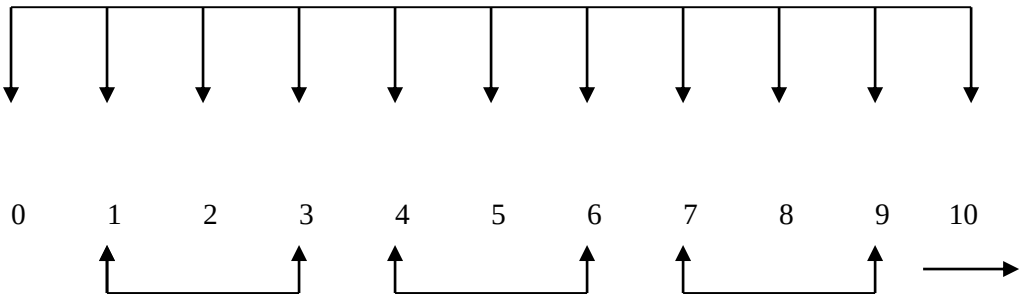
DEMOGRAPHIC PROFILE

1. Age
    a. 13-15 yrs
    b. 16-17 yrs
    c. 18yrs
2. Age at menarche
    a. 10-12 yrs
    b. 13-14 yrs
    c. Above 14 yrs
3. Duration of menstrual cycle
    a. 3 days
    b. 4 days
    c. 5 days
    d. Above 5 days
4. Frequency of menstruation
    a. Every 28 days
    b. Every 30 days
5. Family history of dysmenorrhea
    a. Yes
    b. no
6. Dietary pattern
    a. Non-vegetarian
    b. vegetarian

Part – II

VISUAL ANALOGUE PAIN SCALE

Visual analogue scale will be used to assess the pain during menstruation. The visual analogue scale horizontal line with “no pain” written at one end an “unbearable pain” written at the other end. According to point scale, based on the level of pain in the samples to inform the number of the researcher



INTERPRETATION:

0	-	No Pain
1-3	-	Mild
4-6	-	Moderate
7-9	-	Severe
10	-	Unbearable pain

APPENDIX – X

பகுதி – அ

மக்களியல் தரவு (புள்ளி விவரம்)

1) வயது

அ) 13 - 15 வயதுஆ) 16 - 17 வயது இ) 17 - 18 வயது

2) பருவம் அடைந்த வயது

அ) 10 - 12 வயதுஆ) 13 - 14 வயது இ) 14 வயதுக்கு மேல்

3) மாதவிடாய் ஆகும் நாட்கள்

அ) 3 நாட்கள் ஆ) 4 நாட்கள்

இ) 5 நாட்கள் ஈ) 5 நாட்களுக்கு மேல்

4) எத்தனை நாட்களுக்கு ஒரு முறை மாதவிடாய் சுழற்சி ஏற்படுகிறது

அ) 28 நாட்கள் ஆ) 30 நாட்கள்

5) குடும்பத்தில் உள்ளவர்களுக்கு உதிரச் சிக்கல் இருக்கிறது

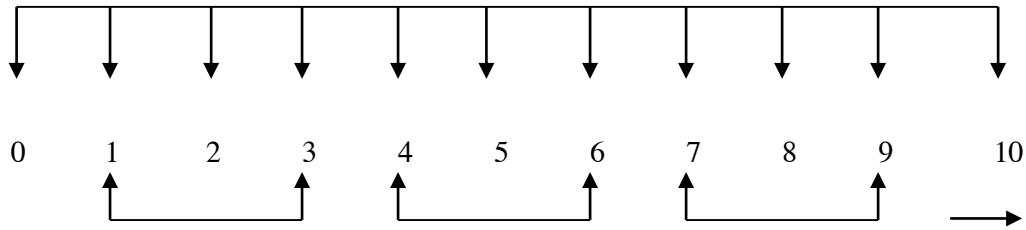
அ) ஆம் ஆ) இல்லை

6) உணவு பழக்கவழக்கங்கள்

அ) சைவம் ஆ) அசைவம்

பகுதி – ஆ

வலியின் அளவுகோல்



விளக்கம்

0	-	வலியின்மை
1-3	-	குறைந்த வலி
4-6	-	நடு நிலையான வலி
7-9	-	**மிகவும்** அதிகமான வலி
10	-	தாங்க **முடியாத** வலி

APPENDIX – XI

Dsymenorrhea and Jacobson's relaxation technique

Introduction

Every women experiences various symptoms attributable to their menstrual cycle on each month. One of the most common complaints among the women is dysmenorrhea. The term 'dysmenorrhea' originates from the Greek word meaning 'difficult to flow' and it is used describe the pain associated with menstruation. Studies reveal that the adolescent females suffer from menstrual pain which is significantly associated with school absenteeism, poor academic as well as sports performance and socialization with peers.

Definition

Dysmenorrhea means painful menstruation of sufficient magnitude to incapacitate day to day activites.(Dutta, 2012).

Types

- Primary dysmenorrhea.
- Second dysmenorrhea.

Jacobson's relaxation technique

Jacobson's relaxation technique or Progressive muscle relaxation technique is an exercise that relaxes the mind and body by progressively tensing and relaxing the group of muscles throughout the entire body. In this method each group of muscles will be tensed without straining and than progressively the muscles will be relaxed. Throughout the full exercise, it is importance to breath at a steady rate.

Aims of teaching

A relaxation programme aims at teaching the group about relaxing the group of muscles, So that it easy to feel a deep sense of relaxation and improve the blood circulation.

The criteria for relaxation

- The person should concentrate fully on what she is doing without allowing any other thought to interrupt.
- They should not fall asleep.
- Comfortable clothing should be worn during relaxation.
- They should breath normally without taking deep breathes. Neither should they hold their breath.
- Concentration should be given fully on that part of the body which is to be engaged in straining and relaxing.
- It is wise to follow the same order of steps every time.
- They should do it as slow as possible in order to avoid sudden jerky movements while executing the each steps.

Steps in procedure

The adolescent girls will be encouraged to do JRT in the following sequence and the instruction is given by the investigator:

- Begin by finding a comfortable position i.e., sitting position in a location where there will be no interruption. Close the eyes and allow the attention to focus only on body. When the mind wanders, bring the concentration back to the muscle which is being worked on.

- Take a deep breath through the abdomen, hold for a few second, and exhale slowly. Again, when a breath is taken notice the stomach rising and the lungs filling with air.
- When a breath is let out, imagine the tension in the body being released and flowing out of the body. And again inhale…..and exhale. Feel the body already relaxing.
- Go through each step and remember to keep breathing.
- Now let's begin. Tighten the muscles in the forehead by raising the eyebrows as high as possible. Hold for about five seconds, and abruptly release feeling the tension fall away.
- Pause for about 10 seconds.
- Now smile widely, feeling your mouth and cheeks tense. Hold for about 5 seconds, and release, appreciating the softness in your face.
- Pause for about 10 seconds.
- Next, tighten the eye muscles by squinting the eyelids tightly shut. Hold for about 5 seconds, and release.
- Pause for about 10 seconds.
- Gently pull the head back as if to look at the ceiling. Hold for about 5 seconds, and release, feeling the tension melting away.
- Pause for about 10 seconds.
- Now feel the weight of the relaxed head and neck sink.
- Breath in…and out.
- In…and out.
- Let go of all the stress

- In…and out. Now, tightly, but without straining, clench the fists and hold this position until I say stop. Hold for about 5 seconds, and release.
- Pause for about 10 seconds.
- Now, flex the biceps. Feel that buildup of tension. Now visualize that muscle tightening. Hold for about 5 seconds, and release, enjoying that feeling of limpness.
- Breath in...and out.
- Now tighten the triceps by extending the arms out and locking your elbows. Hold for about 5 seconds, and release.
- Pause for about 10 seconds.
- Now lift the shoulders up as if they could touch the ears. Hold for about 5 seconds, and quickly release, feeling their heaviness.
- Pause for about 10 seconds.
- Tense the upper back by pulling the shoulders back trying to make the shoulder blades touch. Hold for about 5 seconds, and release. Pause for about 10 seconds. Tighten the chest by taking a deep breath in, hold for about 5 seconds, and exhale, blowing out all the tension.
- Now tighten the muscles in the stomach by sucking in. Hold for about 5 seconds, and release. Pause for about 10 seconds.
- Gently arch the lower back. Hold for about 5 seconds, relax. Pause for about 10 seconds.
- Feel the limpness in the upper body letting go of the tension and stress, hold for about 5 seconds, and relax.
- Tighten the buttocks. Hold for about 5 seconds…, release, imagine your hips falling loose.

- Pause for about 10 seconds. Tighten the thighs by pressing your knees together, and hold a penny between them. Hold for about 5 seconds…and release.
- Pause for about 10 seconds.
- Now flex the feet, pulling the toes towards you and feeling the tension in the calves. Hold for about 5 seconds, and relax, feel the weight of both legs sinking down.
- Pause for about 10 seconds.
- Curl the toes under tensing the feet. Hold for about 5 seconds, release. Pause for about 10 seconds. Now imagine a wave of relaxation slowly spreading through the body beginning at the head and going all the way down to the feet.
- Feel the weight of the relaxed body.
- Breathe in…and out…in…out….in…out. (Edmund 2017) .

இறுகிய மாதவிடாயும் அதற்கு ஜேக்கப்சன் கூறும் ஓய்வு முறையும்

ஒவ்வொரு பெண்ணுக்கும் மாதந்தோறும் வரக்கூடிய மாதவிடாய்க் காலத்தின் போது பல விதமான அறிகுறிகள் ஏற்படுவதுண்டு. பொதுவாகப் பெண்களுக்குத் தோன்றக் கூடிய ஒரு பிரச்சனை என்னவெனில், இறுகிய மாதவிடாய் ஆகும். இதன் ஆங்கிலச் சொல் 'dysmenorrhea' என்பது கிரேக்க மொழியினின்றும் பெறப்பட்டது ஆகும். இது குறுகிய மாதவிடாய் காரணமாகத் தோன்றும் அதிகமான வலியைக் குறிக்கும் பருவமடைந்த பெண்களுக்கு இத்தகைய பிரச்சனை ஏற்படுகையில், அதன் காரணமாக, அவர்கள் பள்ளிப் படிப்பைப் பாதியில் நிறுத்திவிடுவது. படிப்பில் மற்றும் விளையாட்டுக்களில் குறைவான தேர்ச்சி பெறுவது மற்றும் சக மாணவியர்களிடம் உள்ள பழக்கத்தைக் குறைத்துக் கொள்வது போன்ற பிரச்சனைகளுக்கு ஆளாகின்றனர்.

இலக்கணம்:

இறுகிய மாதவிடாய் என்பது அதிகமான வலியுடன் அன்றாட வேலைகளைப் பாதிக்கக்கூடிய மாதவிடாயைக் குறிக்கும்.

வகைகள்:

- முதன்மை இறுகிய மாதவிடாய்
- இரண்டாம் நிலை இறுகிய மாதவிடாய்

ஜேக்கப்சன் கூறும் ஓய்வு முறை:

இறுகிய மாதவிடாய்க்குத் தீர்வாக ஜேக்கப்சன் கூறும் தீர்வு என்னவெனில், உடலின் பல்வேறு தசைகளை படிப்படியாக இறுக்கியும், பின்னர் தளர்த்துவதன் மூலமாக, உடலையும், மனதையும் படிப்படியாக ஓய்வு நிலைக்குக் கொண்டு வருதல் ஆகும். அதாவது, இந்த முறையின்படி,

ஒவ்வொரு தசை அமைப்பும் படிப்படியாக இறுக்கப்பட்டு, பின்னர் படிப்படியாக அவற்றின் இறுக்கத்தைக் குறைப்பது ஆகும். இப்பயிற்சியின் போது, சுவாசத்தை ஒரே மாதிரி வைத்துக் கொள்வது அவசியம்.

இதனைக் கற்பித்திலின் நோக்கம்:

இந்த ஓய்வு முறையைக் கற்பித்தல் மூலமாகத் தசை அமைப்புக்களுக்கு ஓய்வு கொடுத்து அதன் மூலமாக உடலின் இரத்த ஓட்டத்தைச் சீர்படுத்த இயலும்.

ஓய்வுக்குத் தேவையானவை:

- இப்பயிற்சியின் ஈடுபடுபவர் வேறு எதிலும் கவனம் செலுத்தாமல், தனது முழுக் கவனத்தையும் இப்பயிற்சியில் செலுத்த வேண்டும்.
- இப்பயிற்சியின் போது தூங்கக் கூடாது.
- இப்பயிற்சியின் போது வசதியான ஆடைகள் அணிந்திருத்தல் வேண்டும்.
- இப்பயிற்சியின் போது சாதாரணமாக மூச்சுவிட வேண்டும். மிக ஆழமாகவோ அல்லது இறுக்கியோ மூச்சுவிடக்கூடாது.
- எந்தத் தசைப்பபாகத்தின் மீது பயிற்சி அளிக்கப்படுகிறதோ, கவனம் முழுவதும் அதன் மீது இருக்கவேண்டும்.
- இப்பயிற்சியின் ஒவ்வொரு கட்டத்தின் போதும் இதே முறையைப் பின்பற்ற வேண்டும்.
- ஒவ்வொரு கட்டத்தின் போதும் தீடீர் அசைவுகளைத் தவிர்த்து மிக மெதுவாக தசைகளை இயக்க வேண்டும்.

இப்பயிற்சியைப் பின்பற்ற வேண்டிய வழிமுறைகள்:

இப்பயிற்சியின் வழிமுறைகள் பற்றிப் பெண்கள், ஆய்வாளர் கூறுவதைப் போல் செய்ய வேண்டும்.

- ஒரு வசதியான இடத்தைத் தேர்ந்தெடுத்து, அங்கு வசதியான நிலையில் அமர்ந்து கொள்ளவும். இதில் எவ்வித இடையூறும் இருக்கக் கூடாது. கண்களை மூடி, கவனம் முழுவதும் உடலின் மீதே வைத்திருக்கவும். மனம் வேறு எதிலாவது அலைபாயும் போது, மறுபடியும் மனதை உடலின் தசைகள் மீது கொண்டுவரவும்.
- அடிவயிற்றிலிருந்து ஆழ்ந்த மூச்சு இழுத்து, அதனைச் சற்றே நிறுத்திப் பின்னர் மெதுவாக வெளியே விடவும், மறுபடியும், மூச்சை உள்ளே இழுக்கும்போது, வயிறு மேலே எழுந்து, நுரையீரலில் காற்று நிரம்புவதை உணர வேண்டும்.
- மூச்சை வெளியே விடும்போது, உடலின் இறுக்கம் குறைந்து அது வெளியேறுவதைக் கவனிக்கவும். மறுபடியும் மூச்சை உள்ளே இழுத்து வெளியே விடும்போது உடல் ஏற்கனவே ஓய்வு நிலைக்கு வருவதைப் பார்க்கலாம்.
- ஒவ்வொரு கட்டமாக இப்பயிற்சியைச் செய்கையில், மூச்சைச் சீராக இழுத்து விடவும்.
- இப்போது பயிற்சியை ஆரம்பிக்கலாம். முதலில் நெற்றித் தசைகளை இறுக்கி, புருவங்களை முடிந்தவரை மேலே உயர்த்தவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து, பின்னர் மூச்சை வெளியே விட்டு, நெற்றியின் இறுக்கம் வெளியேற விடவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.

- இப்போது, வாயும், கன்னங்களும் இறுக்கமடையும் அளவுக்குப் புன்னகை புரியவும், பின்னர் இந்த வாய் இறுக்கத்தைக் குறைத்து, அதன் மூலமாக முகத்தில் தோன்றும் மென்மையை உணரவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது கண் தசைகளை இறுக்கி, கண் இமைகளை இறுக்கமாக மூடவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து பின்னர் தளர்ச்சி நிலையை அடையவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- மேலே உத்திரத்தைப் பார்ப்பது போன்று தலையைப் பின்னுக்கு இழுக்கவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து, பின்னர் தளர்ச்சி நிலையை அடையவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது தலையின் கனம், கழுத்து இரண்டையும் தளர்த்தவும்.
- மூச்சை உள்ளே....வெளியே
- உடலின் இறுக்கம் முழுவதும் இதன் மூலம் வெளியேறட்டும்.
- மூச்சு உள்ளே... வெளியே. இப்போது கைமுட்டிகளை இறுக்கம் இல்லாமல் மடக்கி 5 வினாடிகள் வைத்திருக்கவும். பின்னர் தளர்ச்சியாக விடவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது தொடைகளின் தசைகளில் இறுக்கத்தை ஏற்படுத்தி அதனை உணரவும். அப்படியே 5 வினாடிகள் வைத்திருந்து பின்னர் இறுக்கத்தை விட்டு, தொடைத் தசைகளின் கனத்தை உணரவும்.
- மூச்சு உள்ளே... வெளியே

- இப்போது கைகளின் தசைகளை இறுக்கி, முழங்கைகளை வெளியே நீட்டவும், இப்படியே 5 வினாடிகள் வைத்திருந்து. பின் தளர்த்தவும்.
- பத்து வினாடிகள் பயிற்சியை நிறுத்தவும்.
- இப்போது காதுகளைத் தொடும் அளவிற்குத் தோள்களை உயர்த்தவும், இவ்வாறு 5 வினாடிகள் வைத்திருந்து, பின்பு தோள்களைத் தளர்த்தவும். அவ்வாறு செய்கையில் தோள்களின் கனத்தை உணர்வீர்கள்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது மேல் முதுகின் பின்புறத்தைப் பின்னுக்கு இழுத்து, முதுகின் இருபக்கத் தசைகளும் ஒன்றையொன்று தொடுமாறு செய்யவும். இந்த நிலையில் 5 வினாடிகள் இருக்கவும். பின்பு, முதுகைத் தளர்த்தி உடலின் இறுக்கம் முழுவதையும் வெளியே விடவும்.
- இப்போது வயிற்றுத் தசைகளை உள்ளடக்கி இறுக்கி வைக்கவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து பின்னர் தளர்த்தவும்.
- பின்னர் 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது முதுகின் கீழ்புறத்தைச் சற்று வளைத்து, 5 வினாடிகள் அப்படியே வைத்திருக்கவும்.
- 10 வினாடிகள் பயிற்சினை நிறுத்தவும்.
- இப்போது உடலின் மேற்புறத்தில் இறுக்கம் ஏற்படுத்தி, அதன் கனத்தை உணரவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து. பின் தளர்த்தவும்.

- இப்போது இடுப்பின் பின் கீழே உள்ள தசைகளை இறுக்கவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து, பின் தளர்த்தவும். இவ்வாறு செய்கையில், இடுப்புத் தளர்ந்து கீழே இறங்குவதை உணரலாம்.
- இப்போது தொடைகளை இறுக்கி, முழங்கால்கள் இரண்டையும் சேர்த்து வைத்து. அவற்றுக்கிடையில் ஒரு நாணயத்தை வைக்கவும். இவ்வாறு 5 வினாடிகள் வைத்திருந்து, பின் தளர்த்தவும்.
- பயிற்சியை 10 வினாடிகள் நிறுத்தவும்.
- இப்போது, கால் பாதங்களை நீட்டி, அவற்றை உள்நோக்கி இழுக்கவும், இவ்வாறு செய்கையில் கால்தசைகளின் இறுக்கத்தை உணரவும். இந்த நிலையில் 5 வினாடிகள் வைத்திருந்து, பின் தளர்த்தவும். இவ்வாறு தளர்த்தும்போது, இரு கால்களின் கனம் தளர்வதை உணரலாம்.
- பத்து வினாடிகள் பயிற்சியை நிறுத்தவும்.
- இப்போது, பாதங்களை வெளிப்பக்கம் வளைத்து, பின் அவற்றைத் தளர விடவும்.
- பத்து வினாடிகள் பயிற்சியை நிறுத்தவும்.
- இப்பயிற்சி மூலம், தலையிலிருந்து, கால்வரை ஒரு தளர்வை ஏற்படுத்துவதை உணரலாம்.
- இப்போது உடலின் தளர்ந்த பாரத்தை உணரலாம்.
- மூச்சு உள்ளே... வெளியே... உள்ளே...வெளியே (எட்மண்ட். 2017).

APPENDIX-XII

INVESTIGATOR ADMINISTERING JACOBSON'S RELAXATION TECHNIQUE